



Weatherford[®]

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

COMPANY			O'BRIEN ENERGY RESOURCES CORP.		
WELL			LARRABEE 4-4		
FIELD			MOHLER		
PROVINCE/COUNTY			MEADE		
COUNTRY/STATE			U.S.A. / KANSAS		
LOCATION			1220' FNL & 335' FEL		
SEC 4	TWP 34S	RGE 29W	Other Services		MML
Latitude			MPD/MDN		
Longitude					
API Number	15-119-21366				
Permanent Datum GL, Elevation 2530 feet					
Log Measured From KB					
Drilling Measured From KB @ 11 FEET					
Date	26-MAY-2014				
Run Number	ONE				
Service Order	7036-88315374				
Depth Driller	6415.00		feet		
Depth Logger	6408.00		feet		
First Reading	6404.66		feet		
Last Reading	1492.00		feet		
Casing Driller	1494.00		feet		
Casing Logger	1492.00		feet		
Bit Size	7.875		inches		
Hole Fluid Type	WBM				
Density / Viscosity	9.40	lb/USg	60.00	CP	
PH / Fluid Loss	9.00		8.00	ml/30Min	
Sample Source	MUDPIT				
Rm @ Measured Temp	1.78 @ 75.0		ohm-m		
Rmf @ Measured Temp	1.42 @ 75.0		ohm-m		
Rmc @ Measured Temp	2.14 @ 75.0		ohm-m		
Source Rmf / Rmc	CALC		CALC		
Rm @ BHT	1.05 @130.0		ohm-m		
Time Since Circulation	3 HOURS				
Max Recorded Temp	130.00		deg F		
Equipment / Base	13057		LIB		
Recorded By	DEREK CARTER				
Witnessed By	ROGER PEARSON				
JOB #	LB14-158				
			PETER DEBENHAM		

BOREHOLE RECORD					Last Edited: 26-MAY-2014 11:52
Bit Size inches		Depth From feet		Depth To feet	
7.875		1494.00		6415.00	
CASING RECORD					
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft	
SURFACE	8.625	0.00	1494.00	24.00	

REMARKS
- SOFTWARE ISSUE: WLS 13.08.2113
- TOOL STRING: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION
- HARDWARE: MDN: DUAL BOWSPRING ECCENTRALIZER MFE: 1 X 0.5 INCH STANDOFF MAI: 2 X 0.5 INCH STANDOFF
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST
- HI-RESOLUTION REPEAT PASS PRESENTED ON A SANDSTONE MATRIX (2.65 G/CC) REQUESTED
- MAIN PASS PRESENTED ON A LIMESTONE MATRIX (NO HI-RES) REQUESTED

- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1830 CU. FT.

- ANNULAR HOLE VOLUME WITH 4.5 INCH CASING FROM TD TO 4000 FT.: 520 CU. FT.

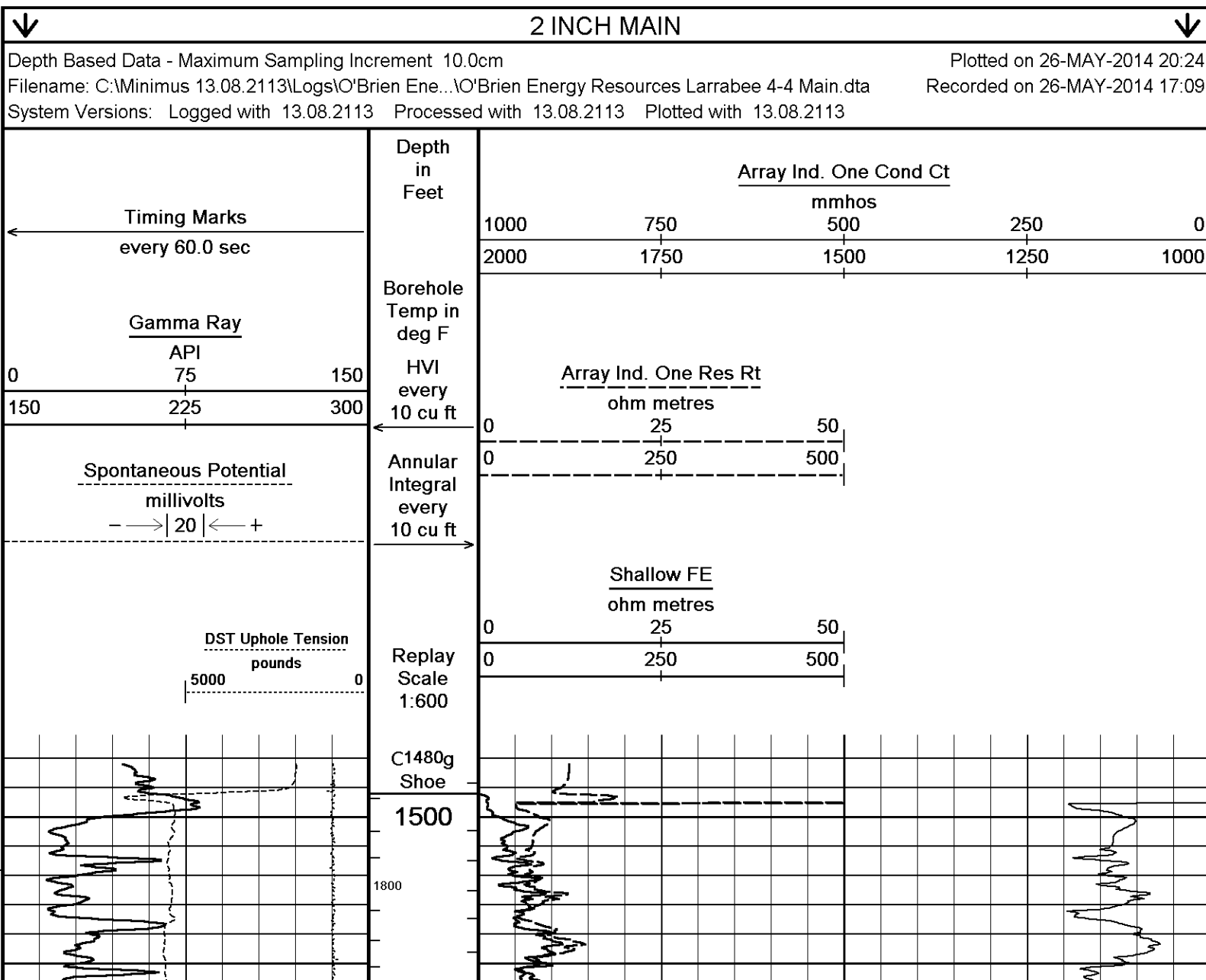
- RIG: DUKE DRILLING #6

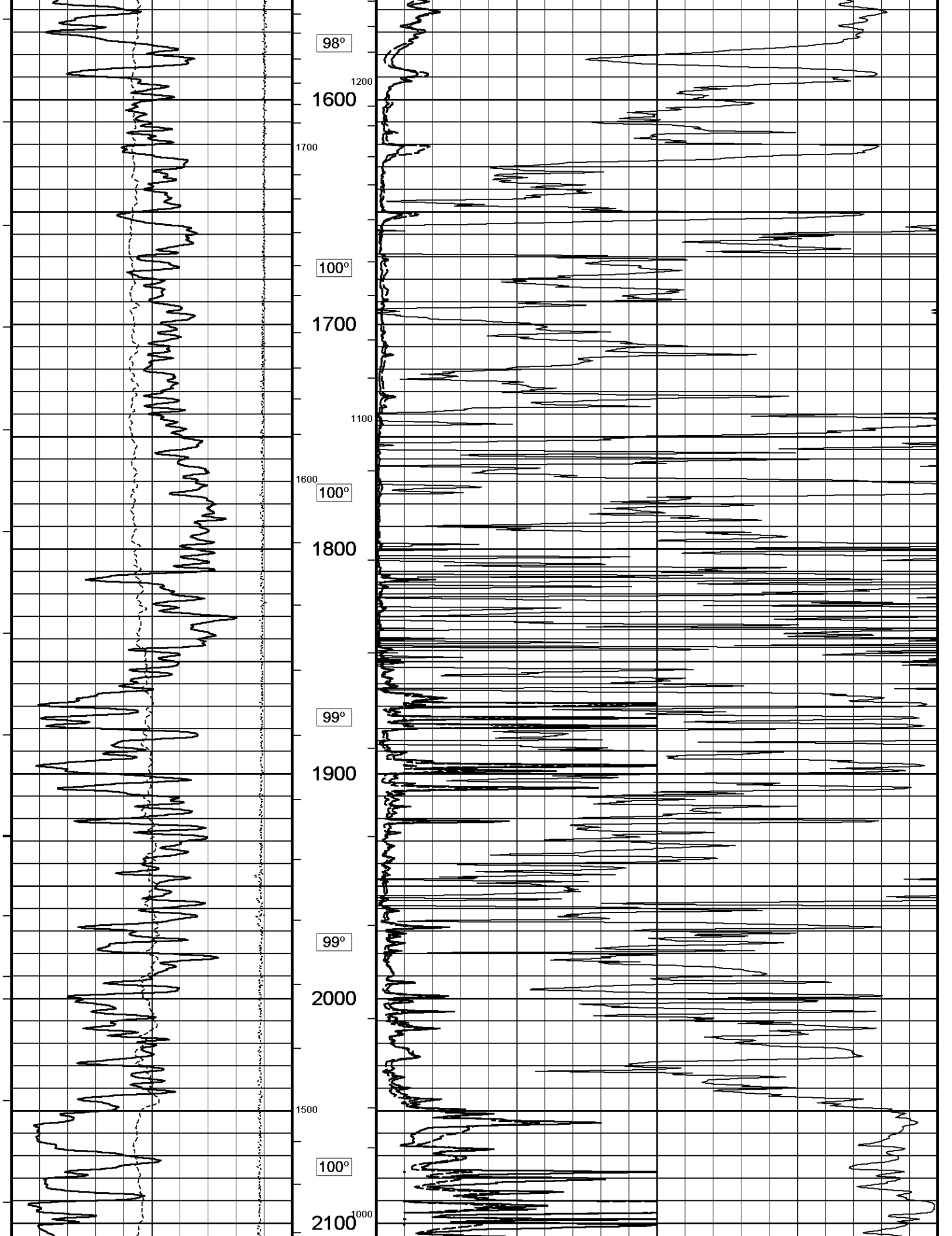
- SERVICE ORDER #: 7036-88315374

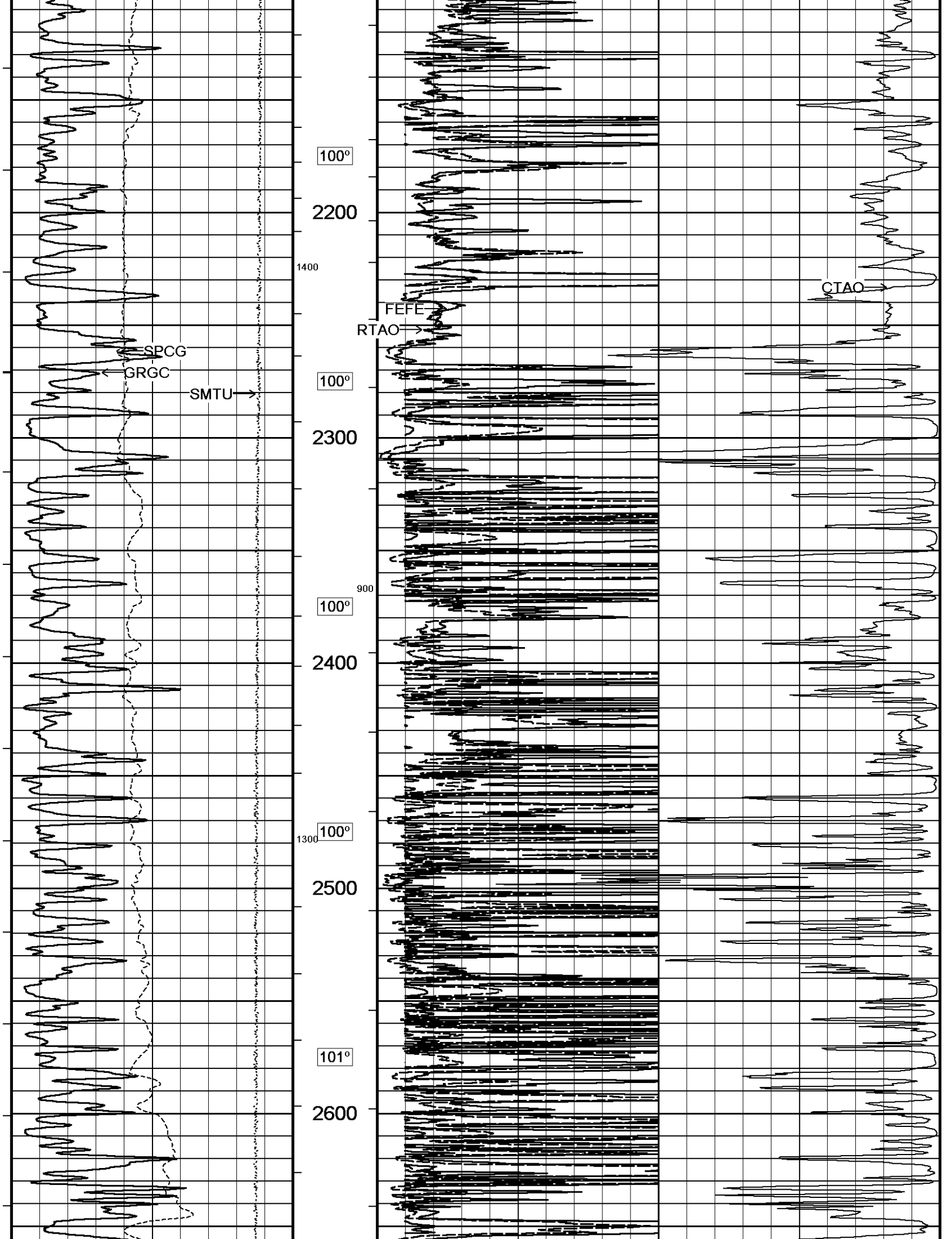
- ENGINEER: DEREK CARTER

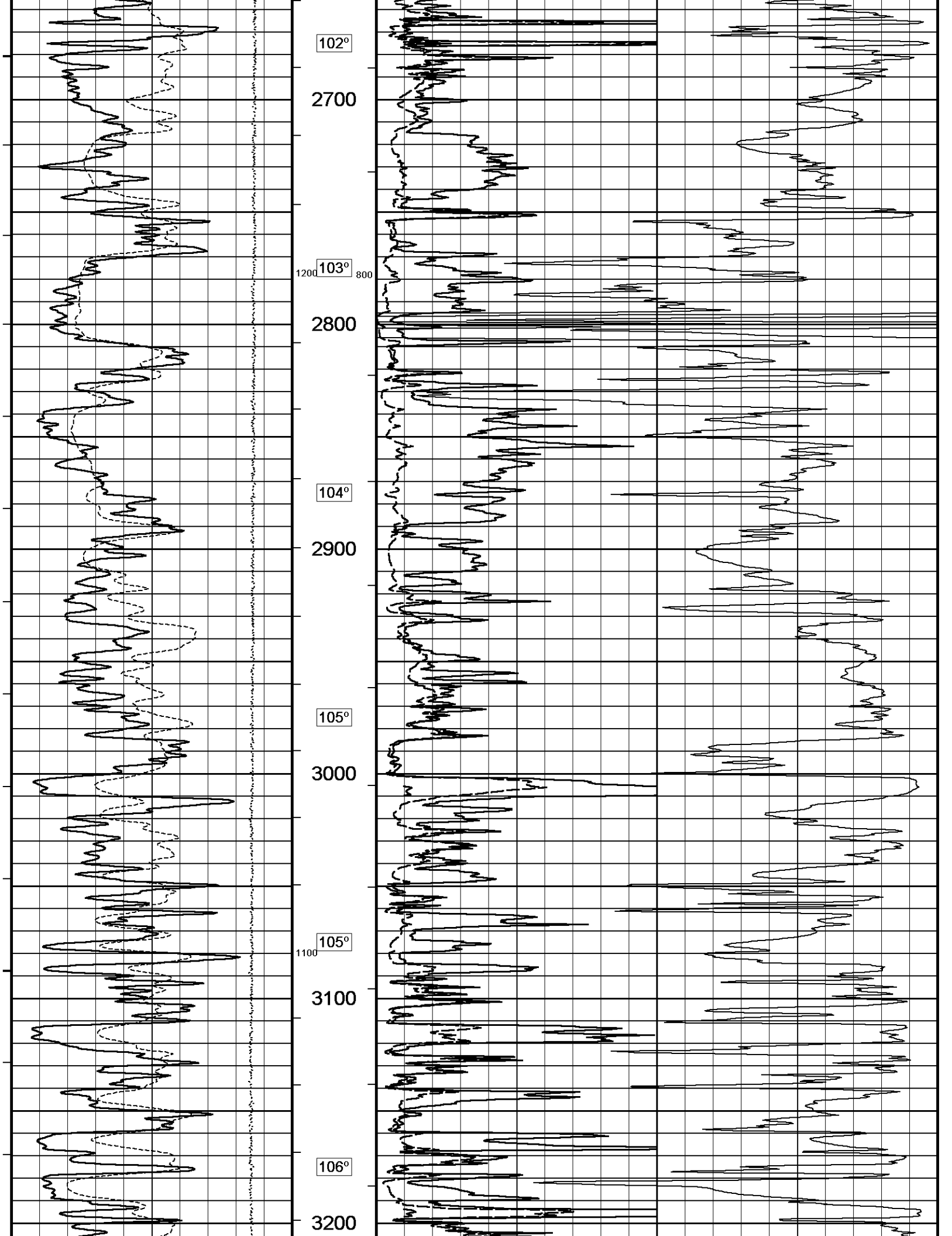
- OPERATOR: CARLOS RAMIREZ

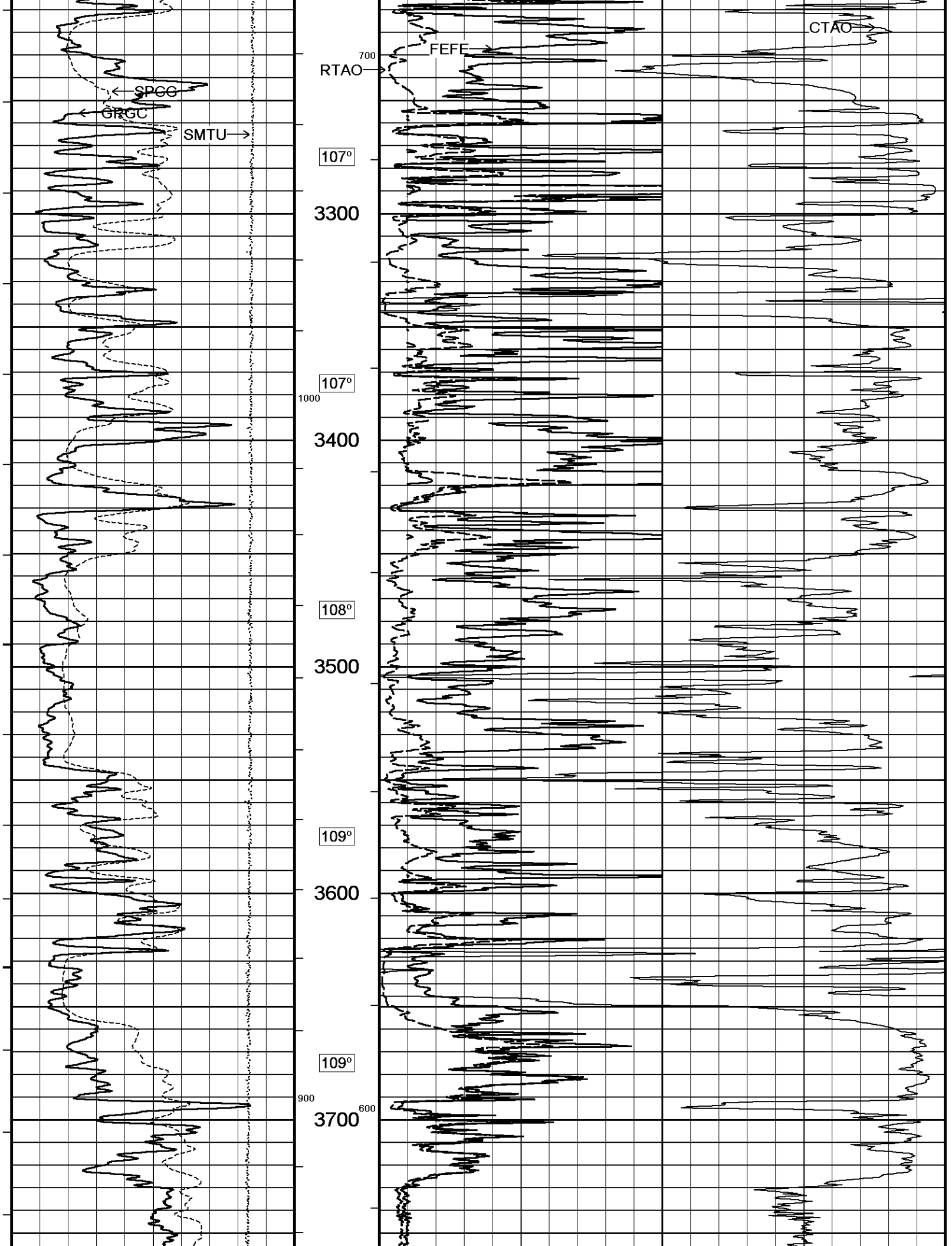
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

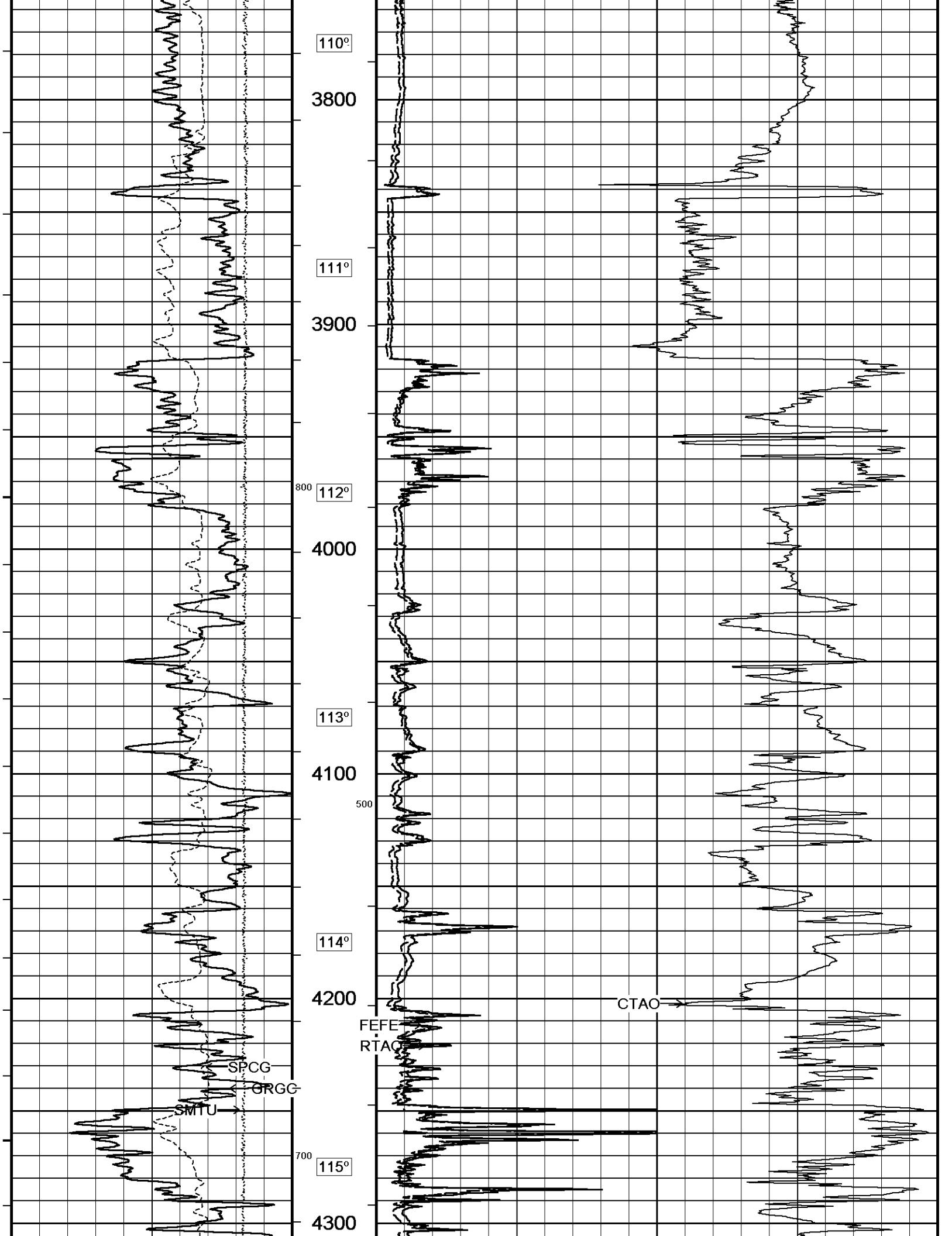


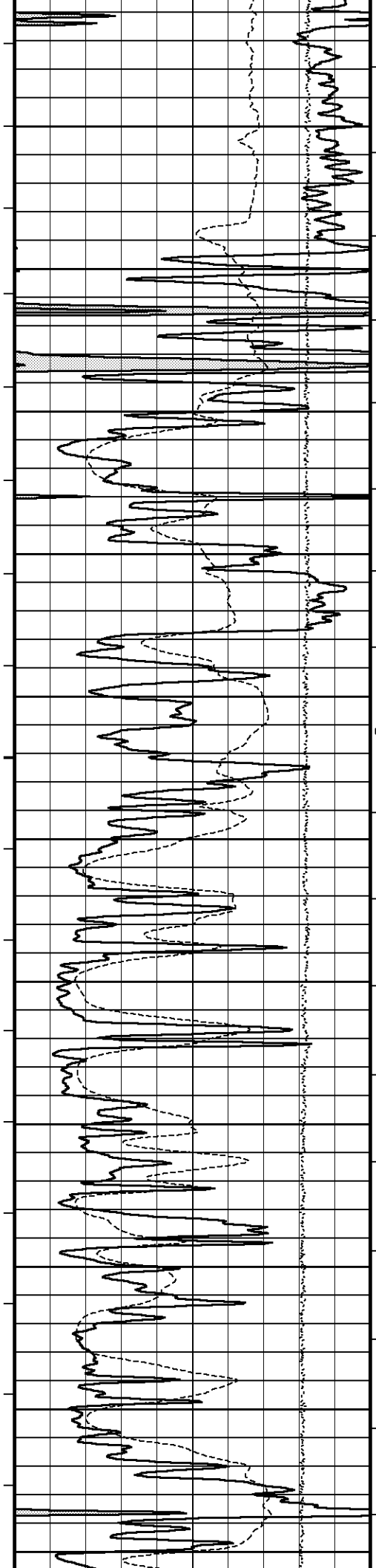












116°

4400

116°

4500

400

600

117°

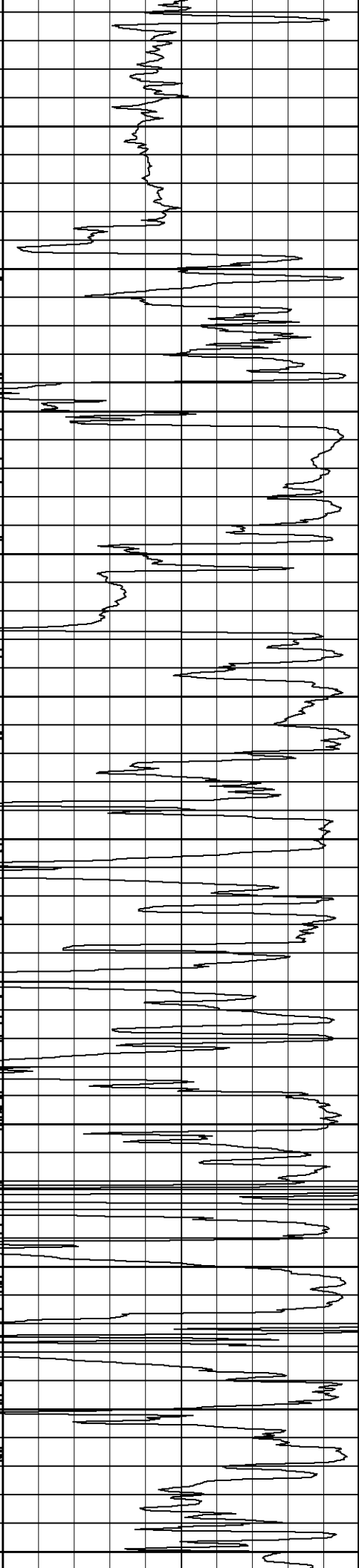
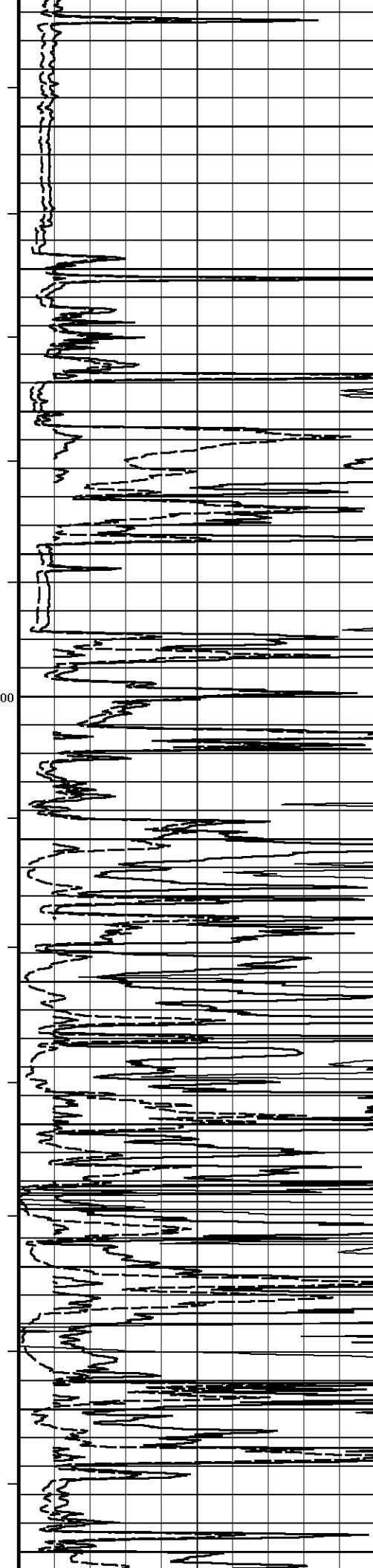
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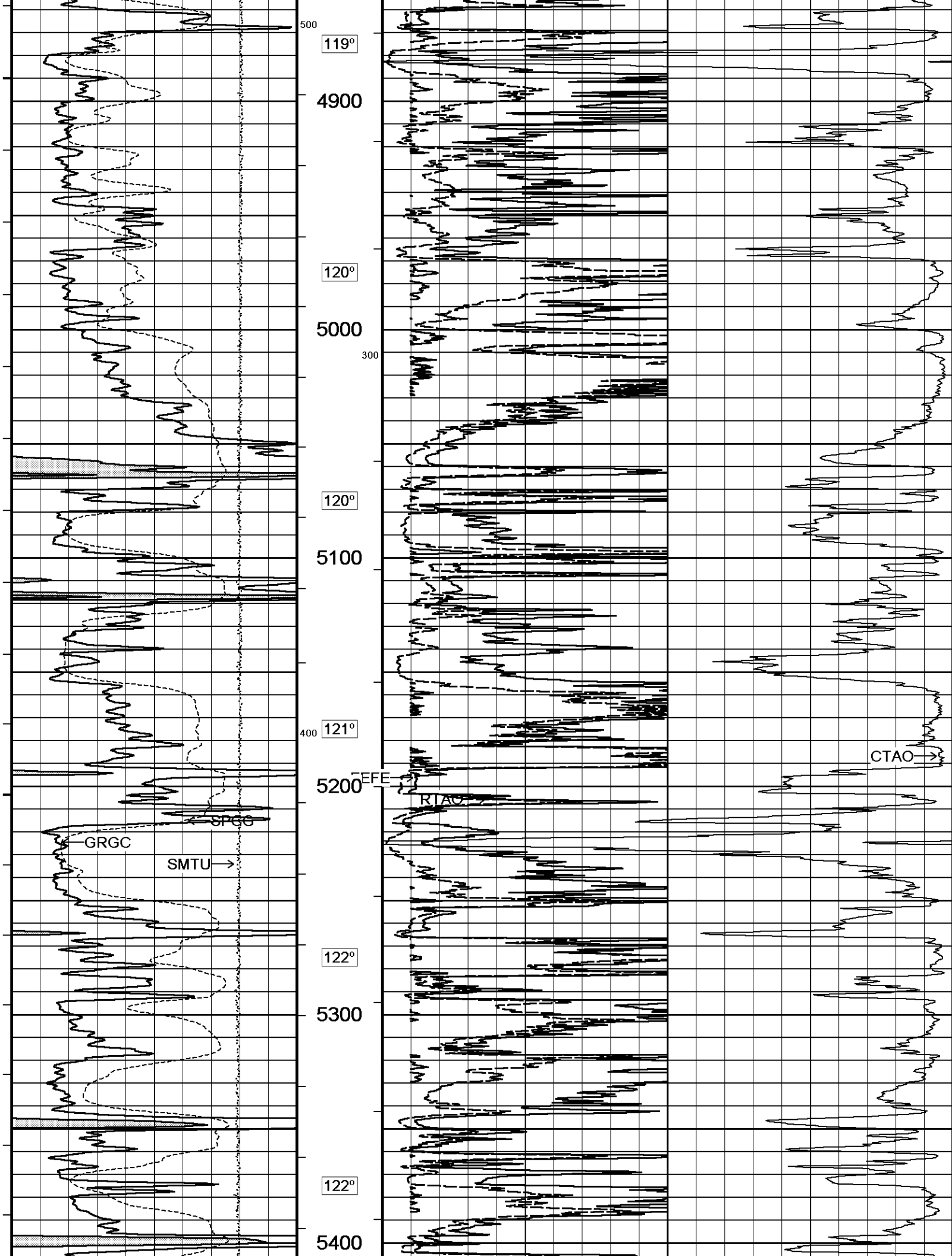
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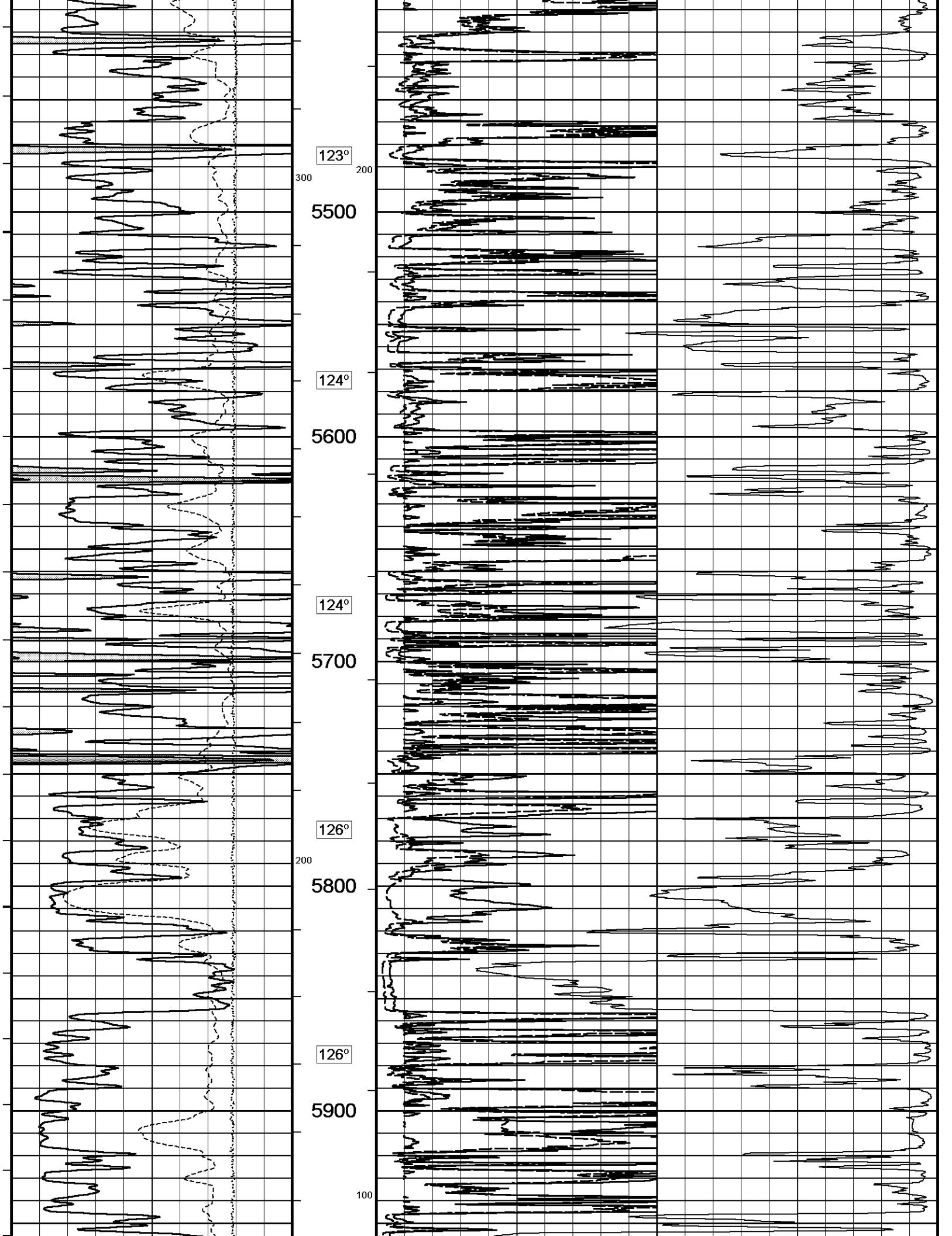
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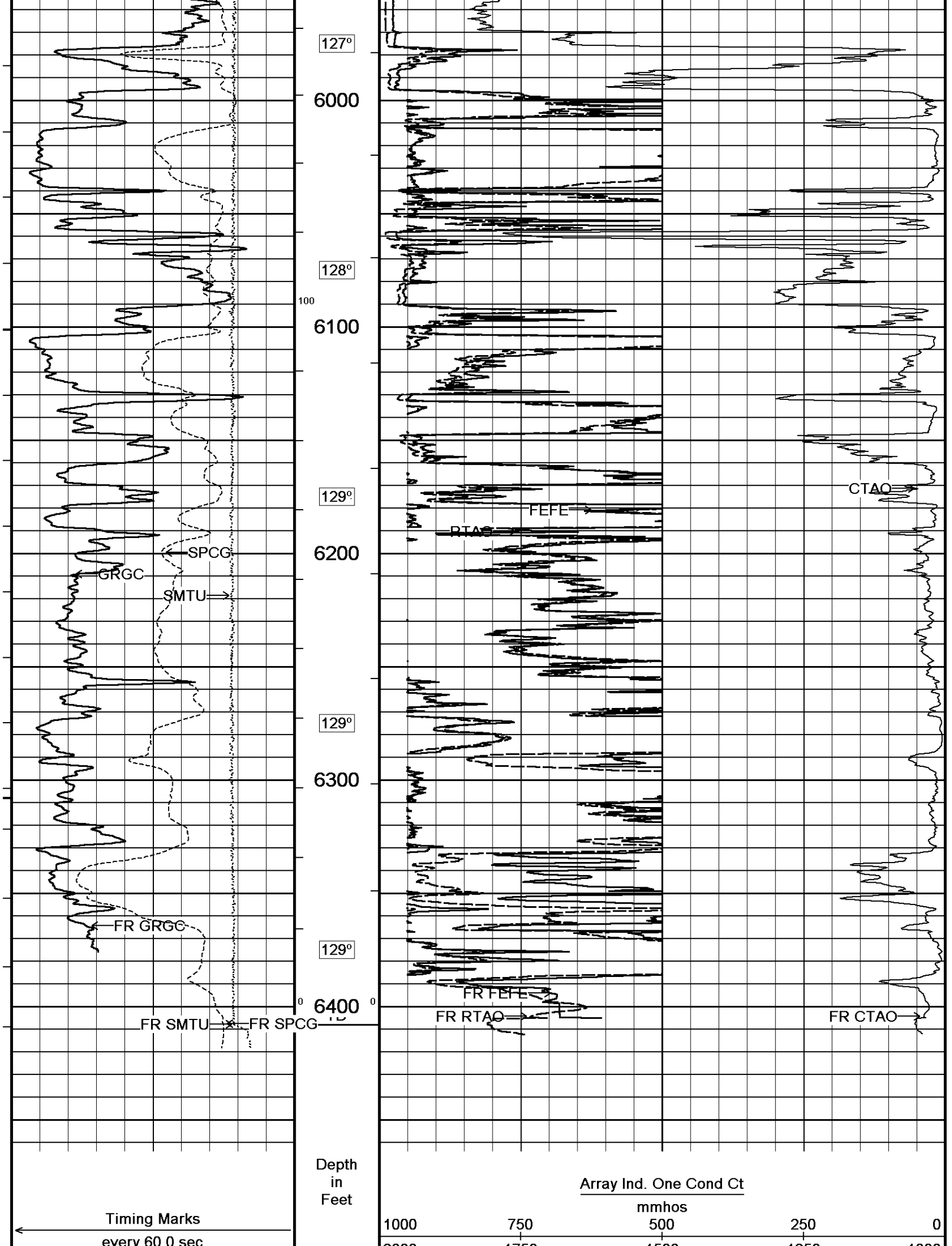
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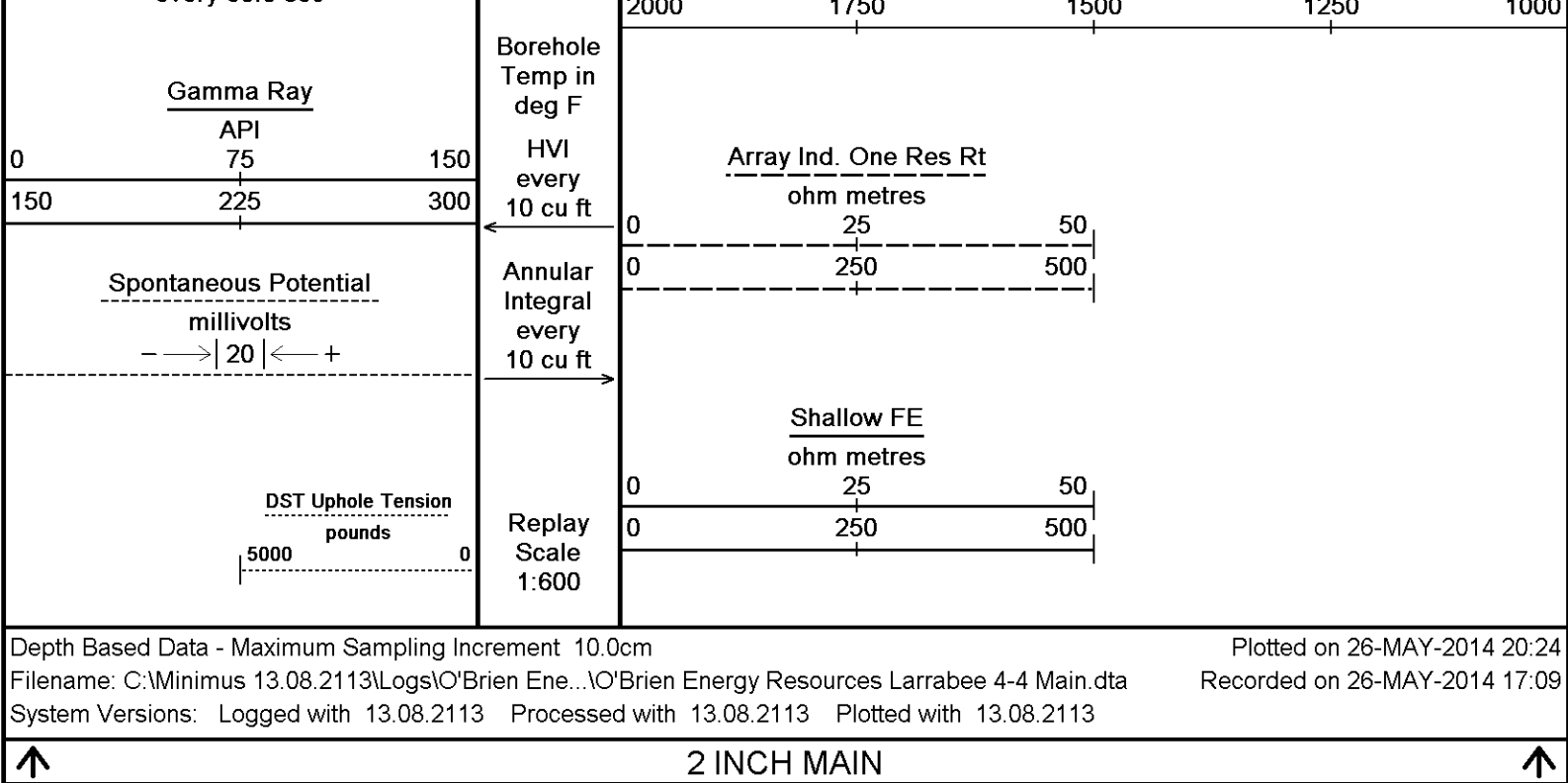
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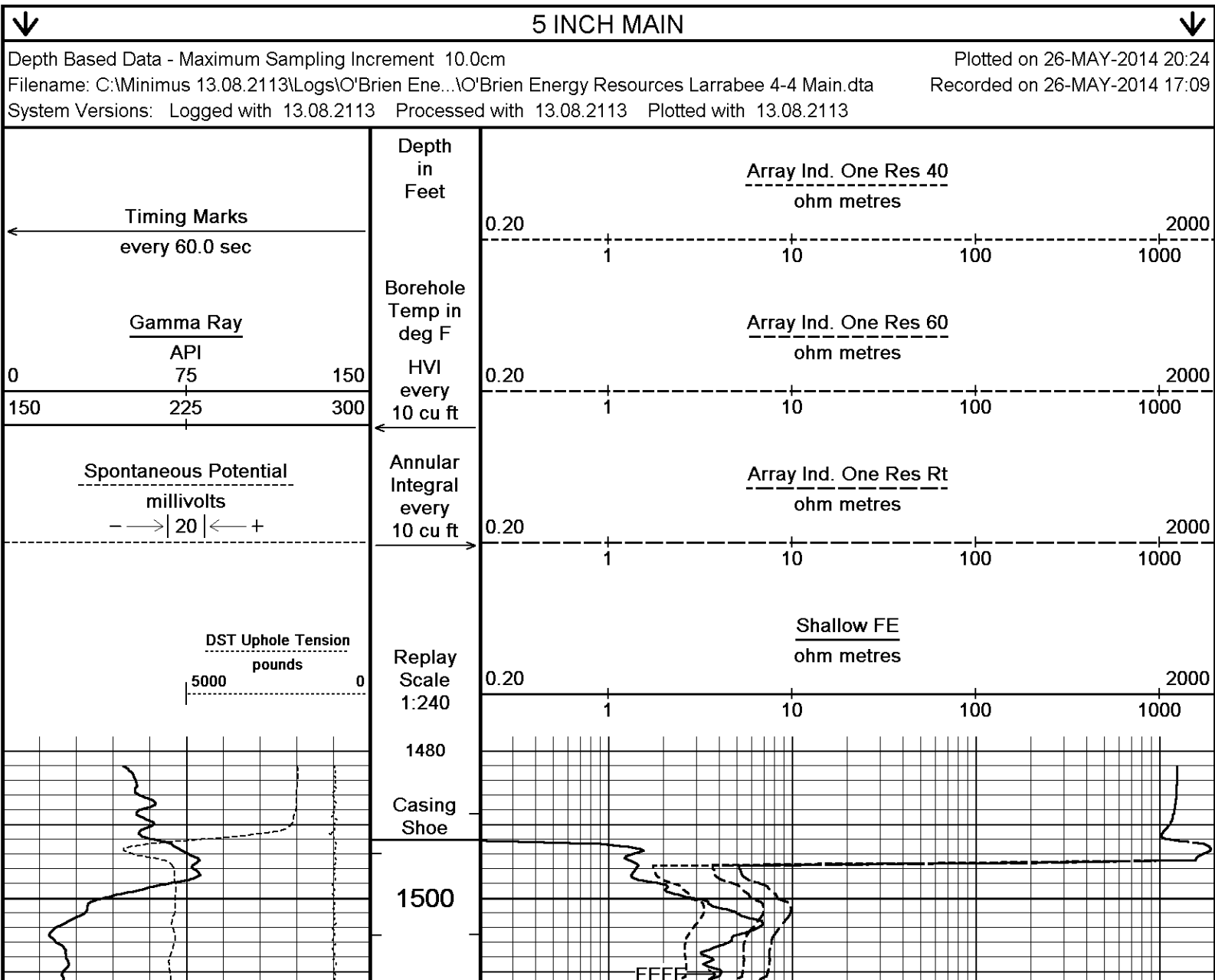


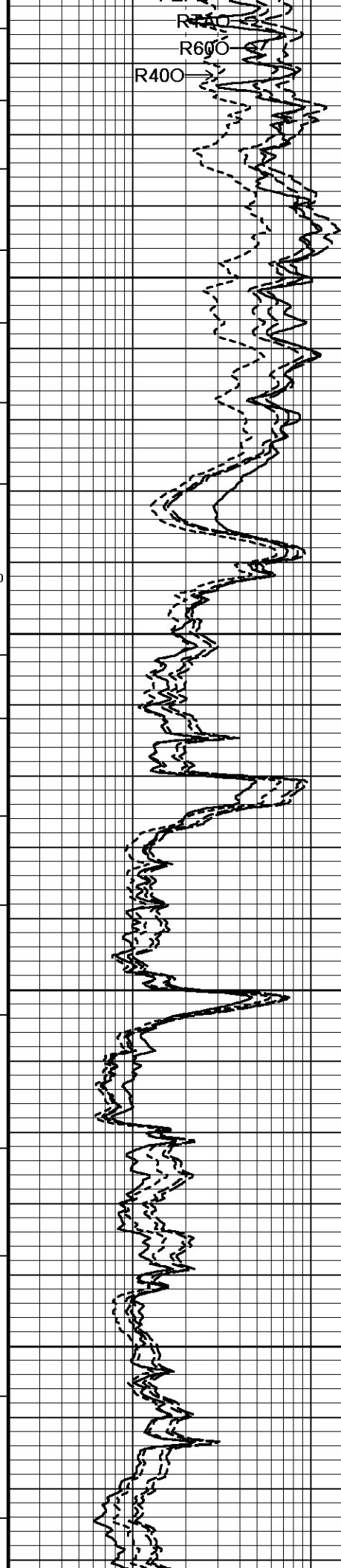
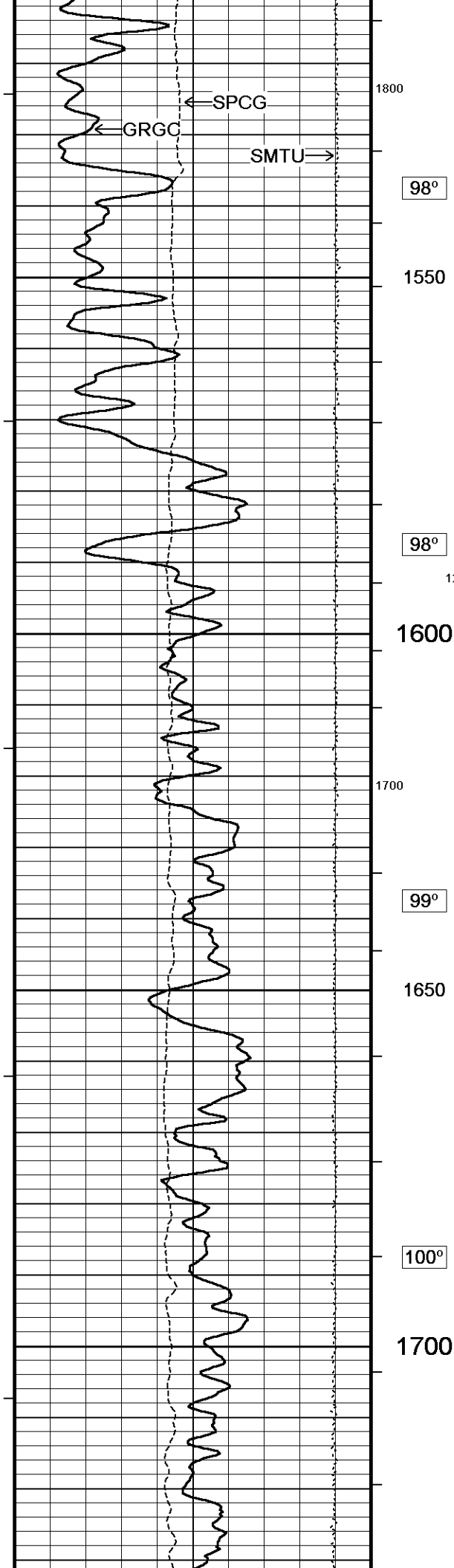


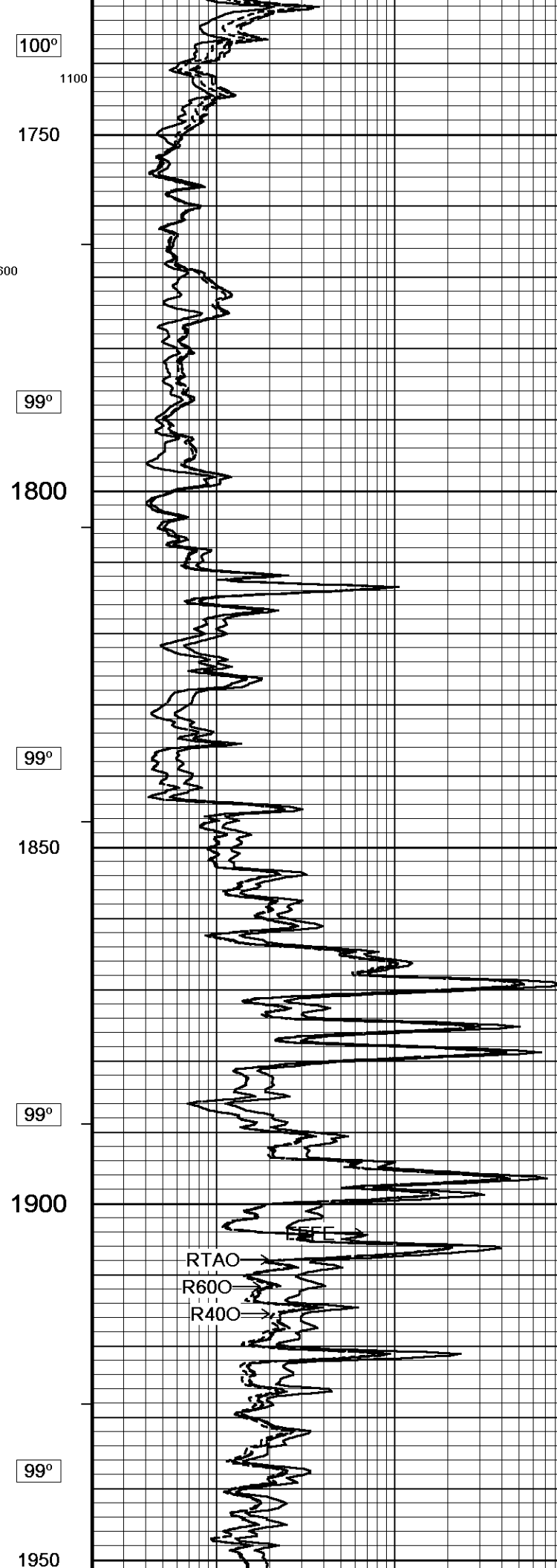
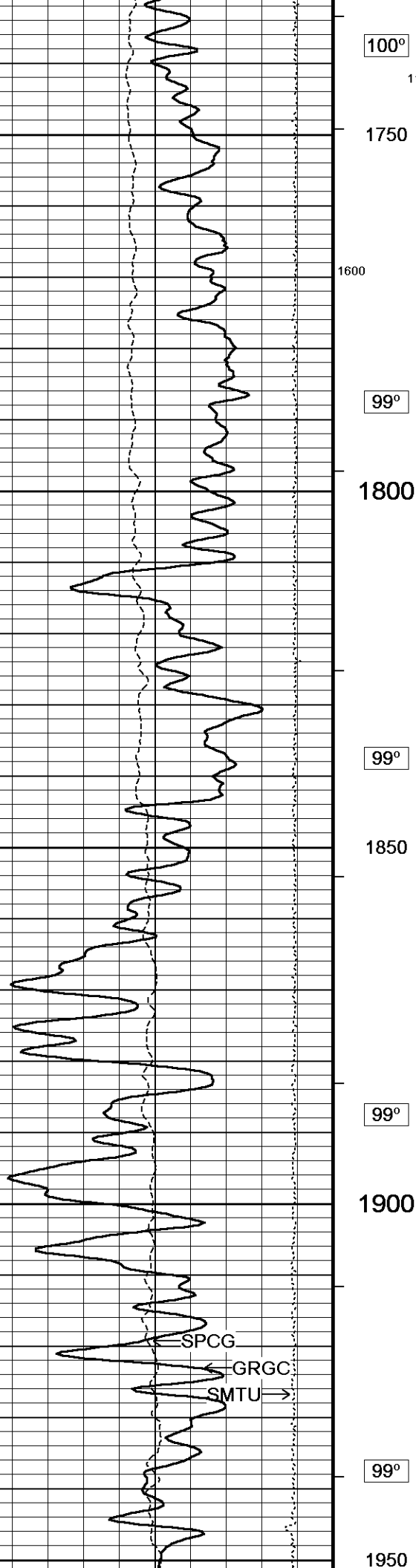
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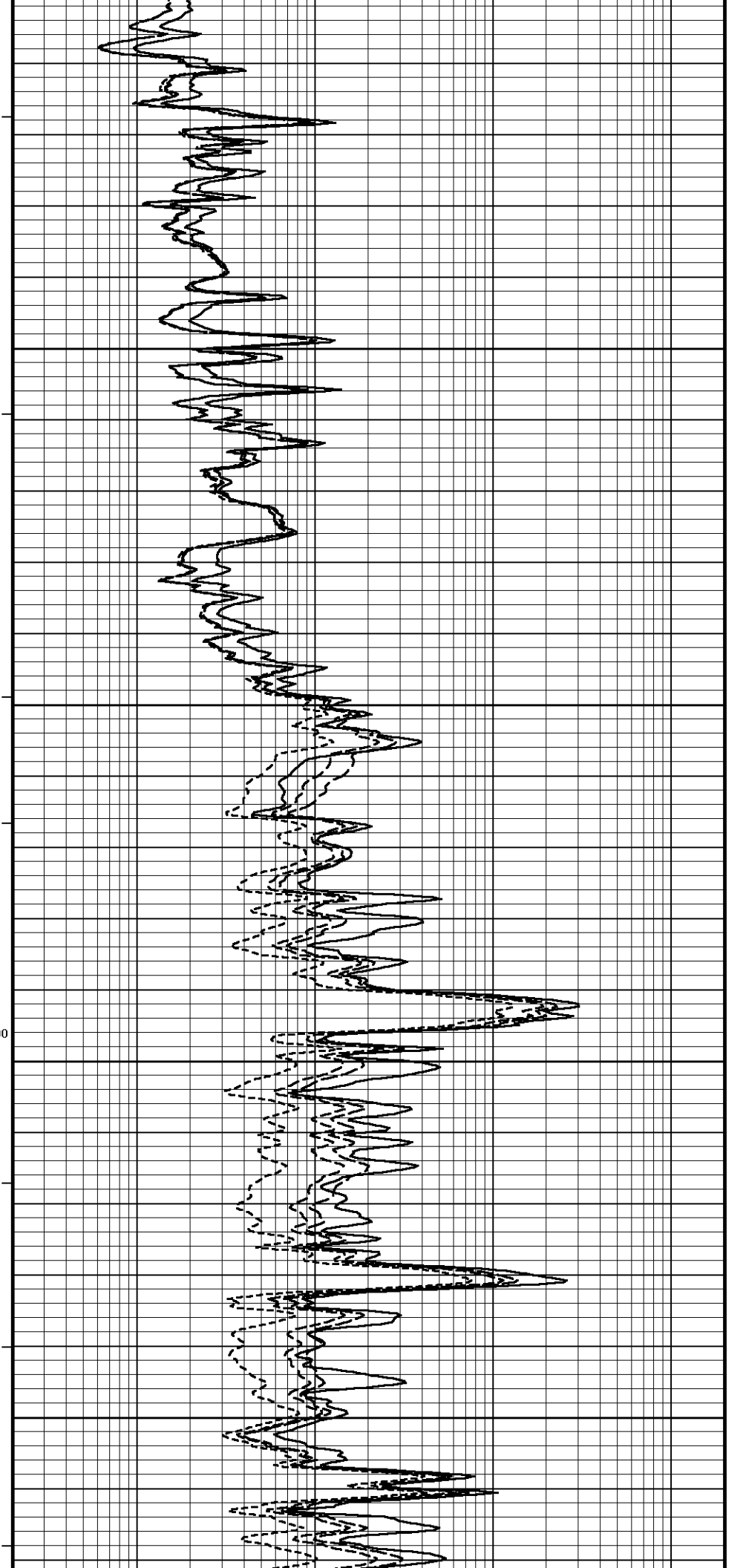
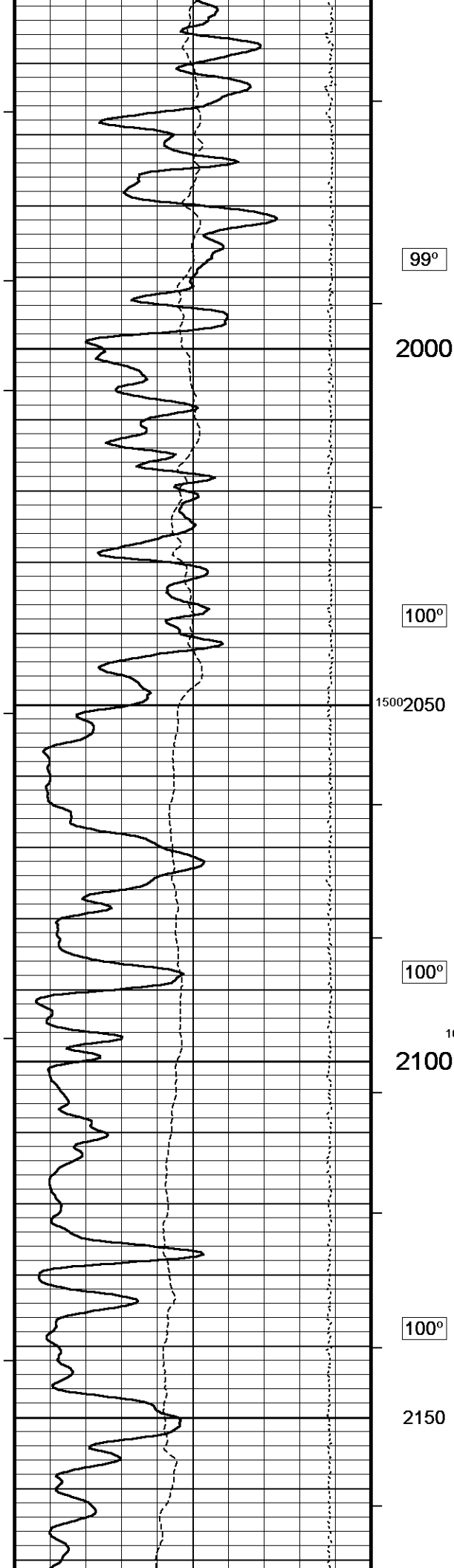
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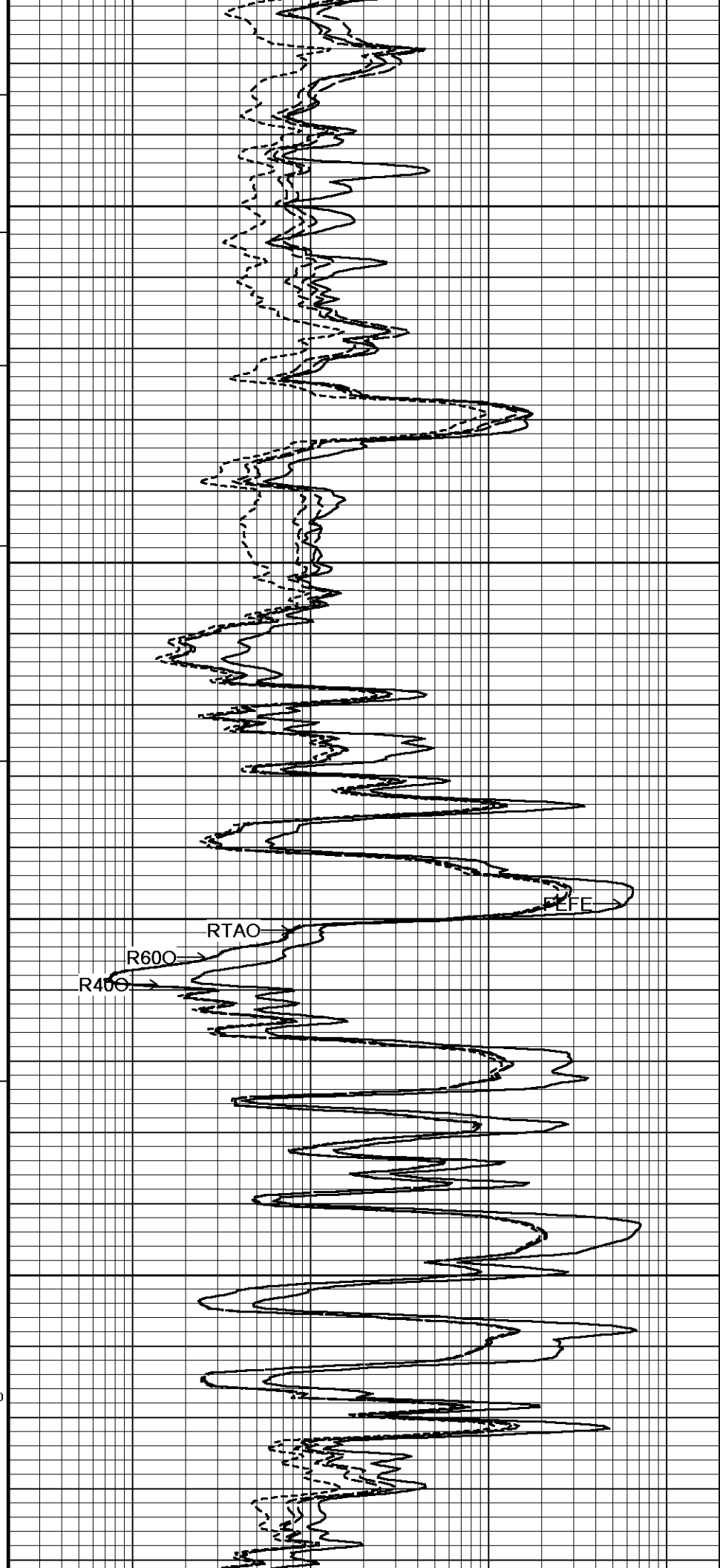
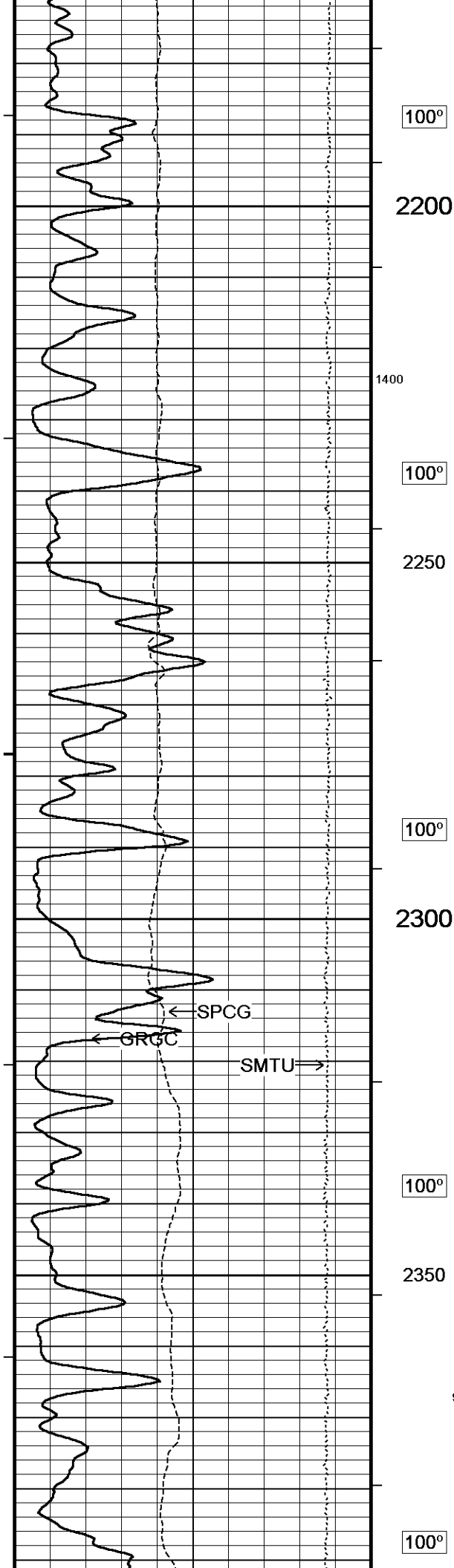
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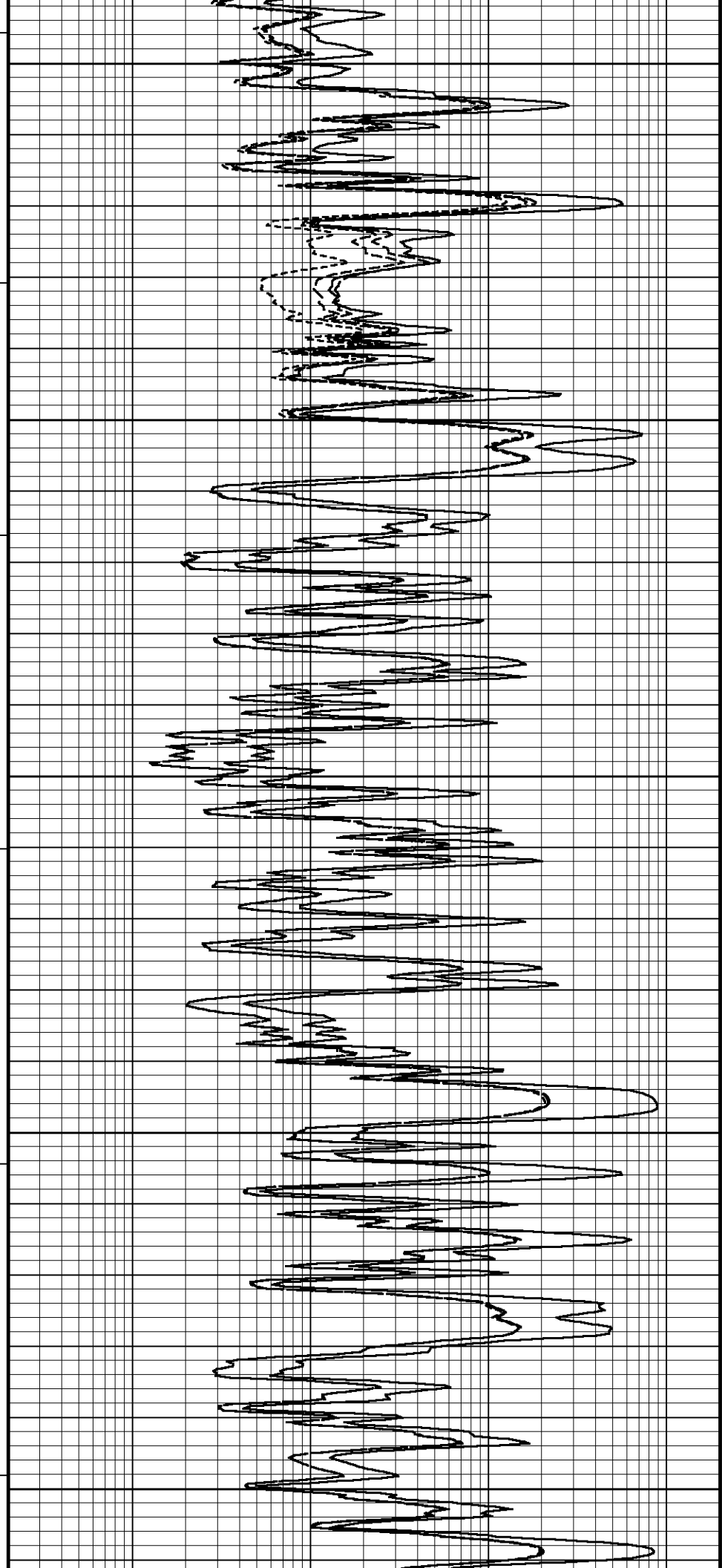
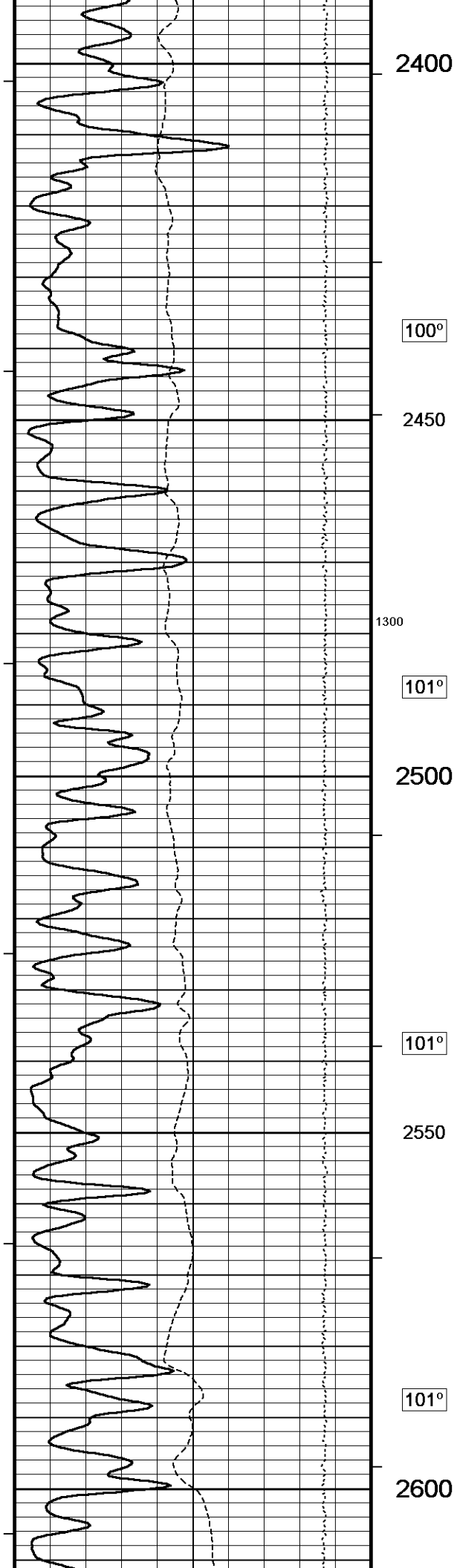


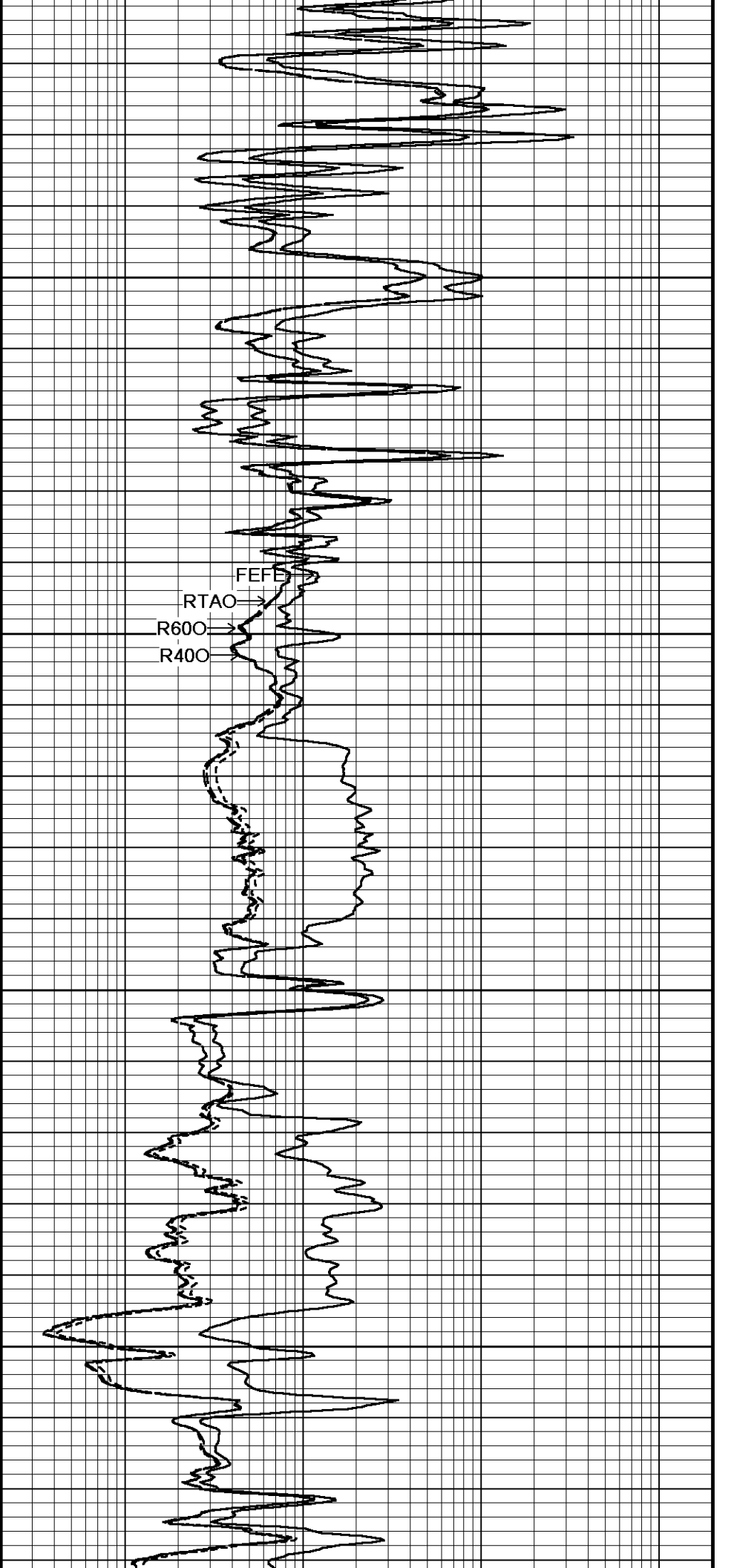
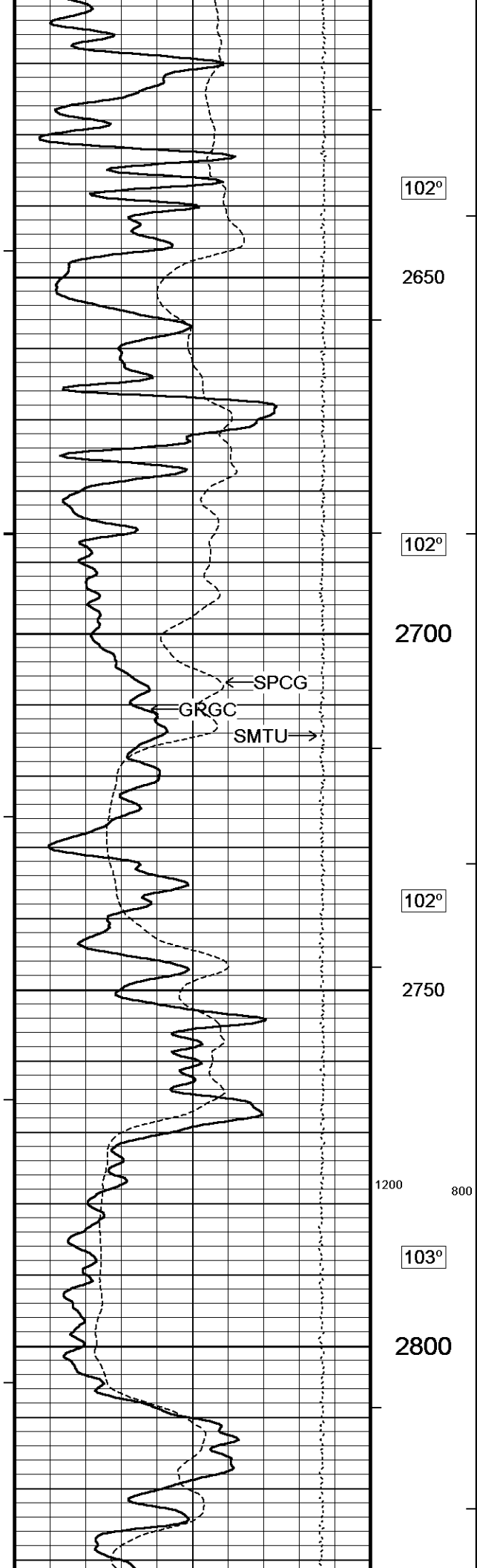


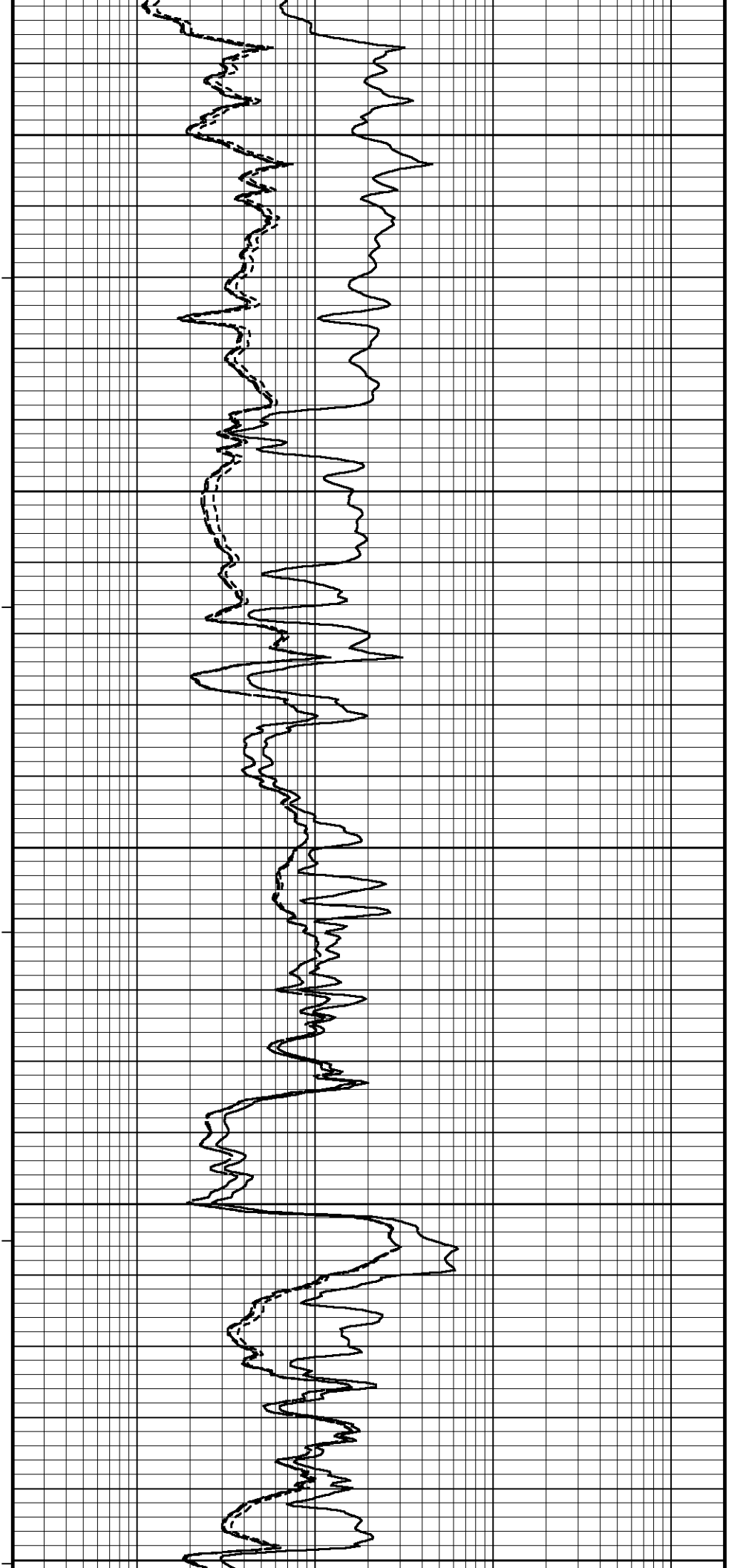
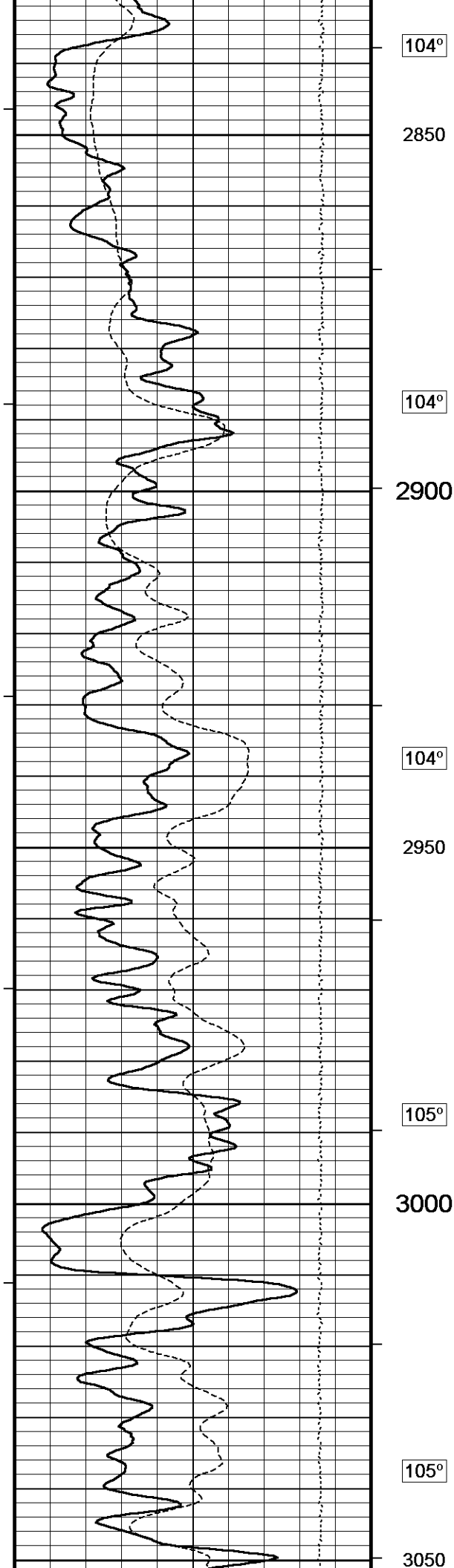


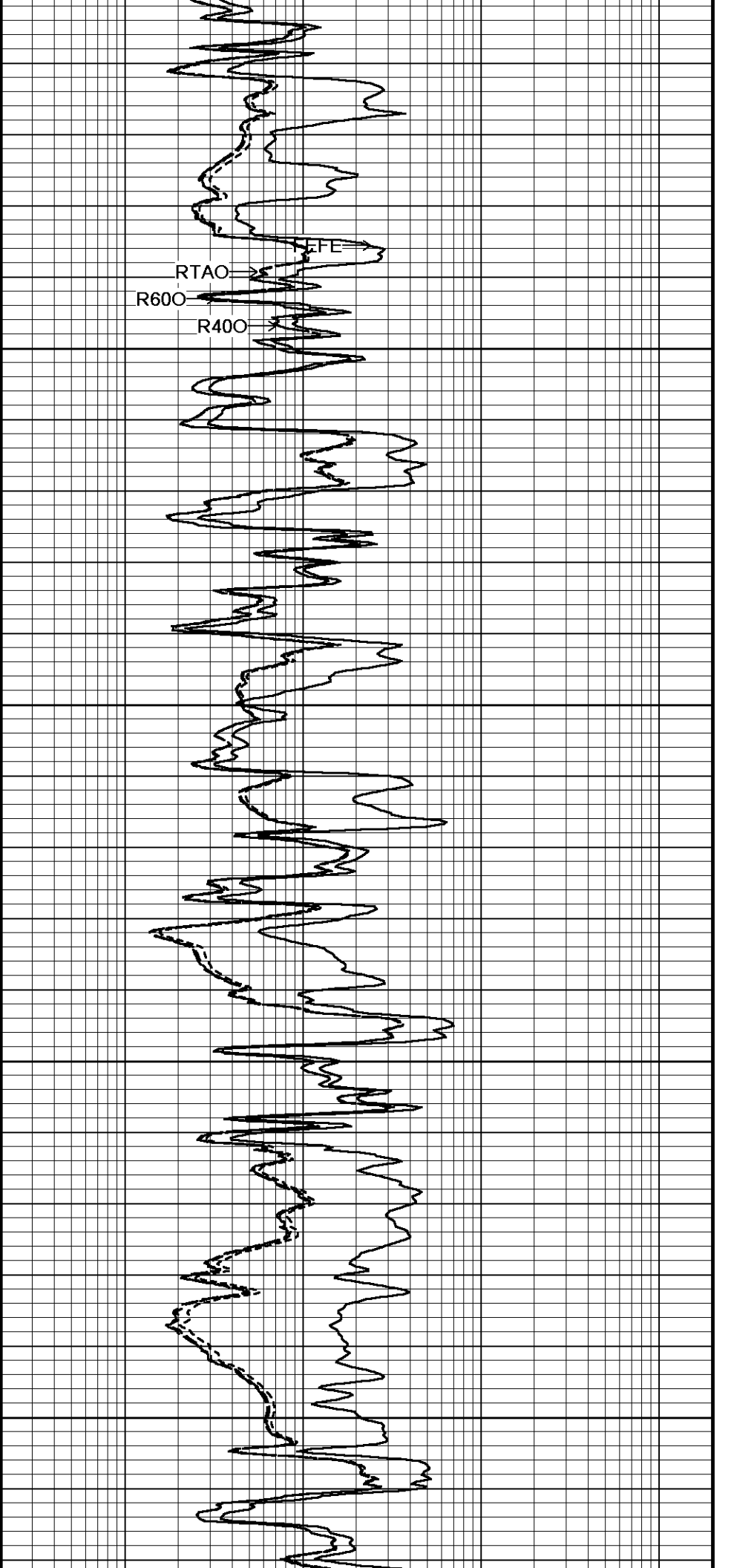
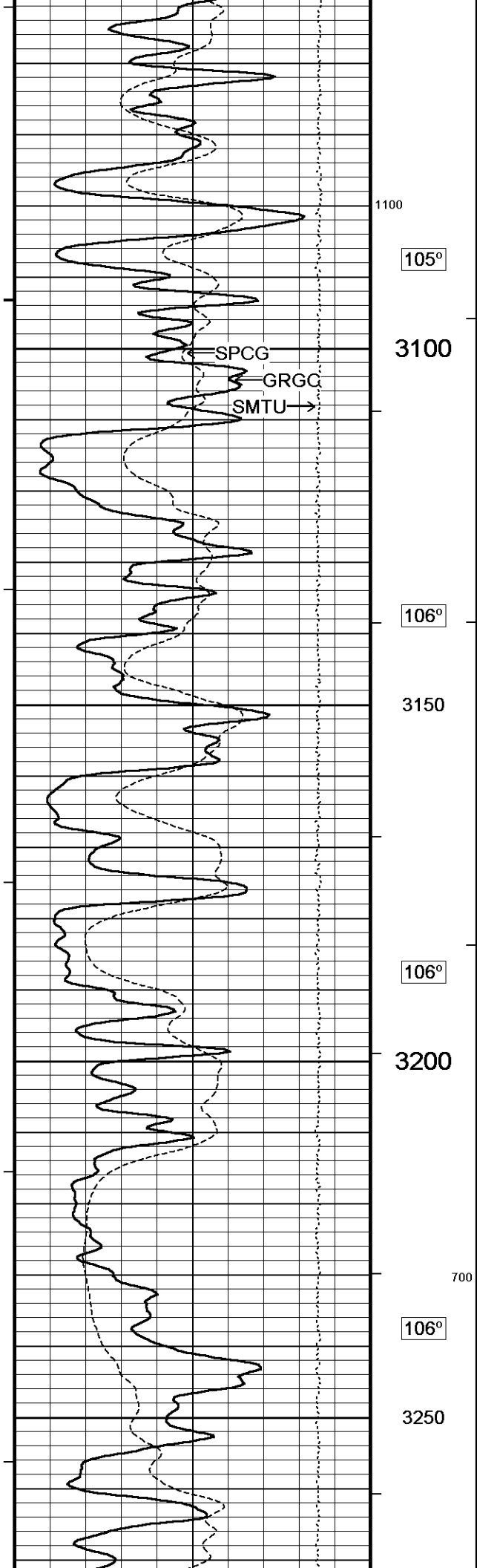


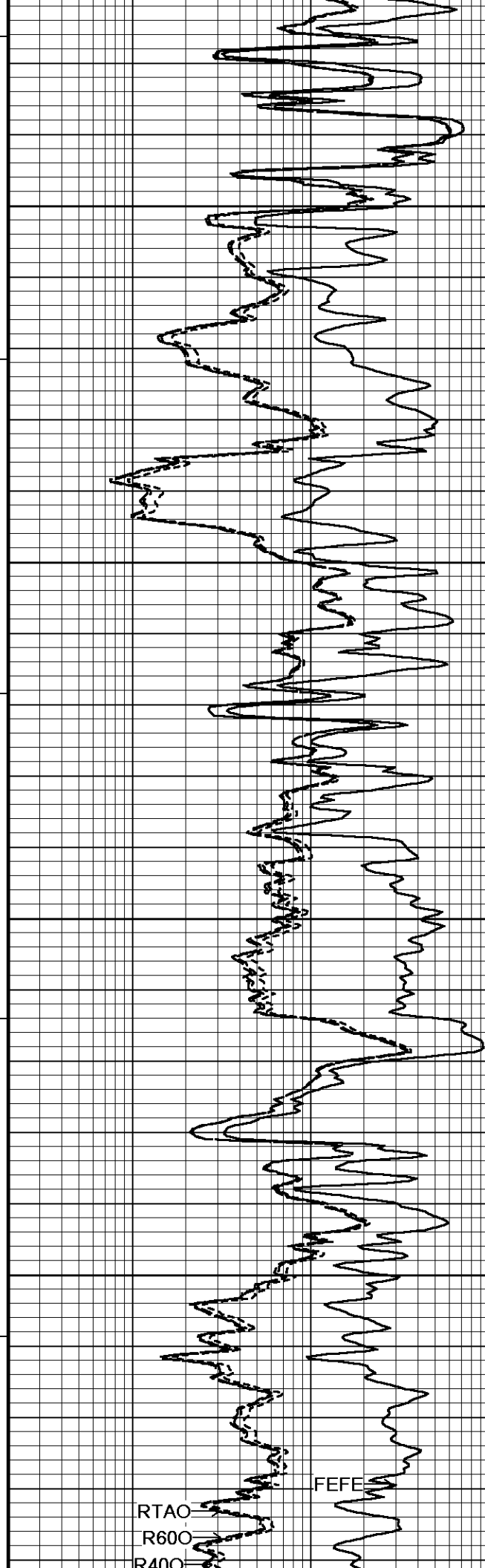
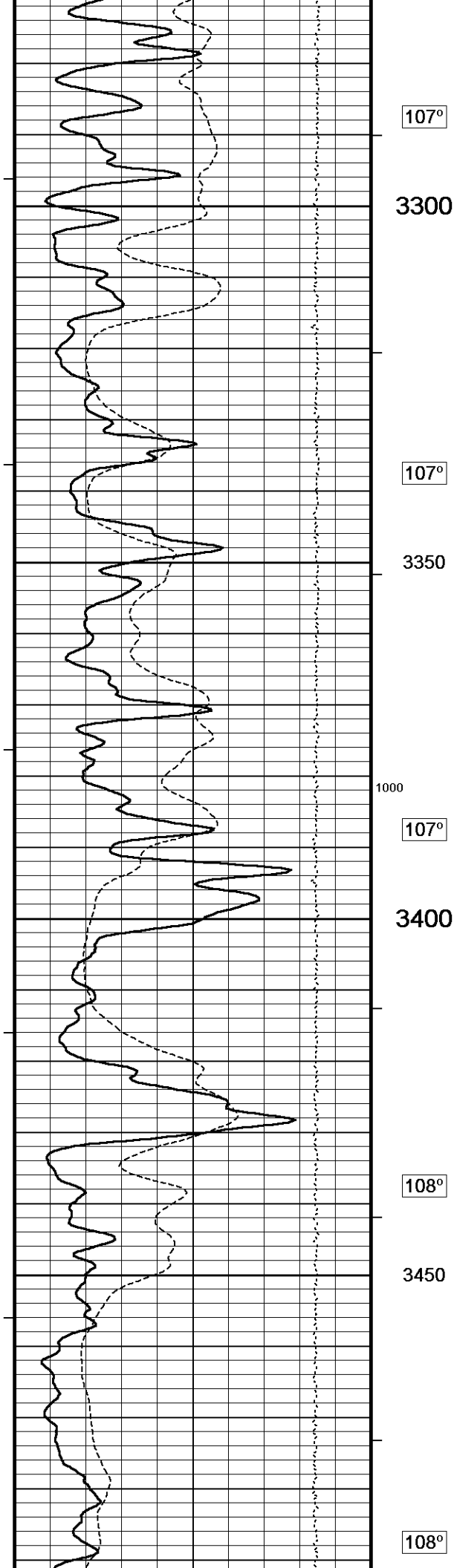


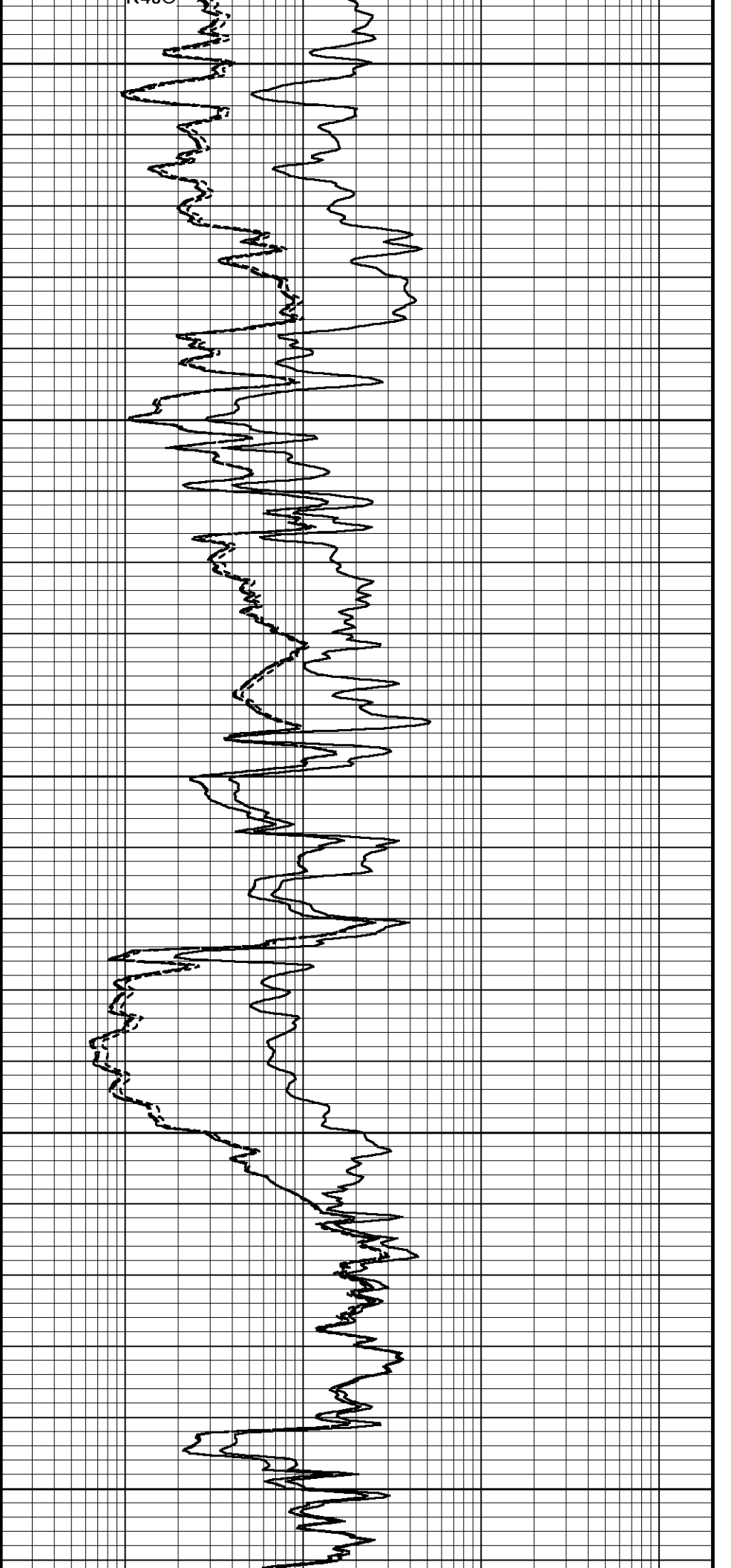
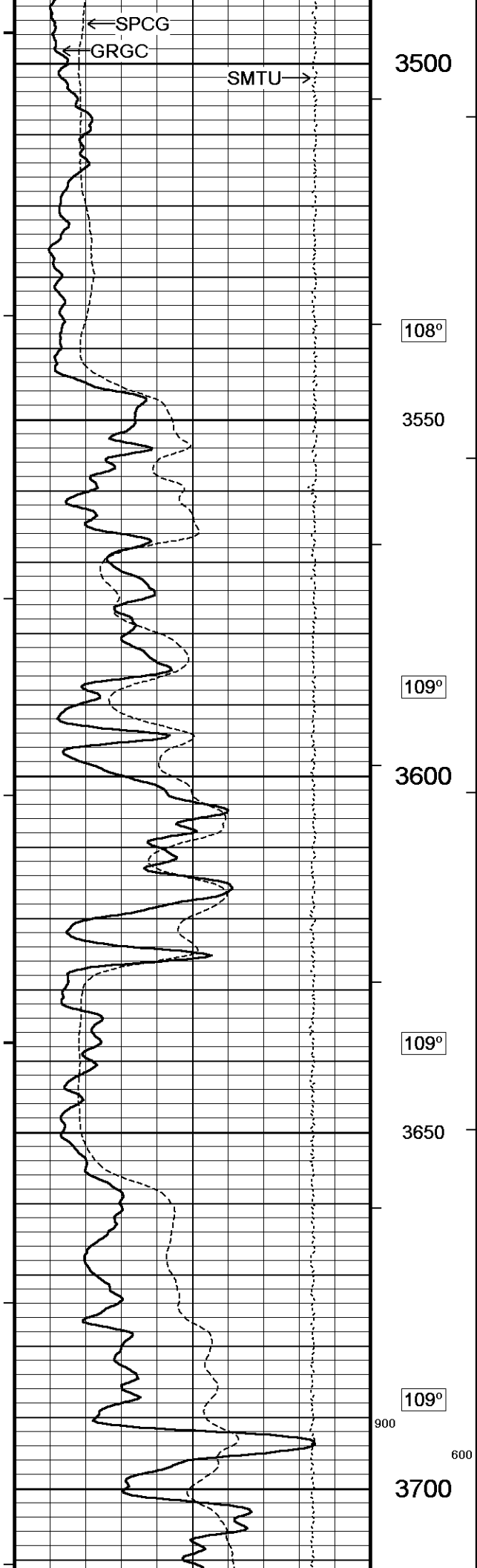


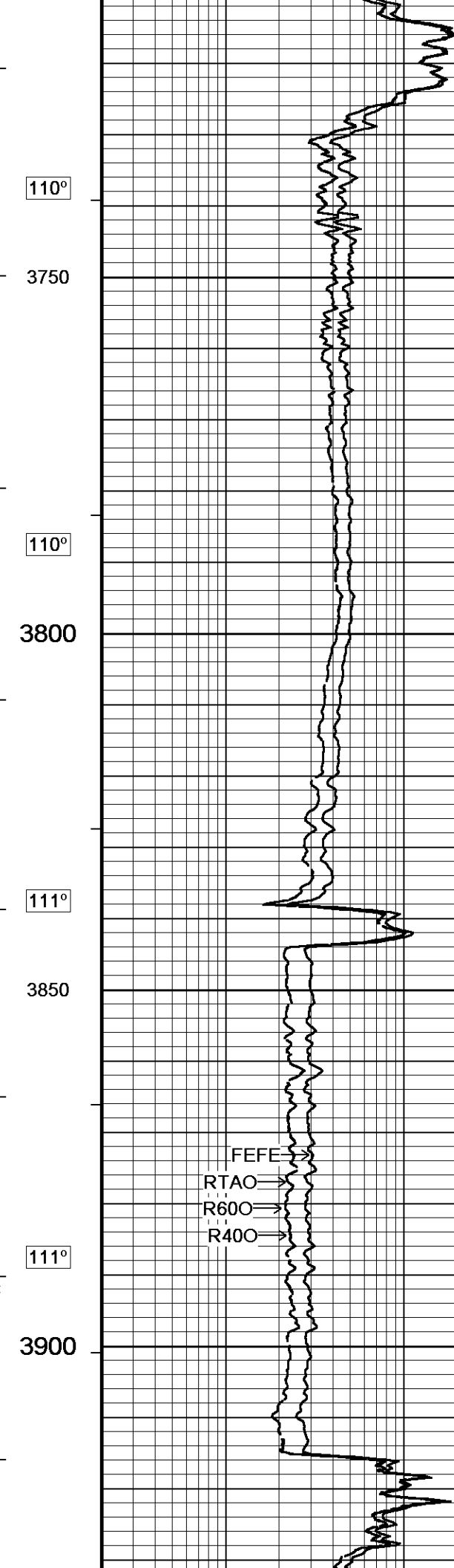
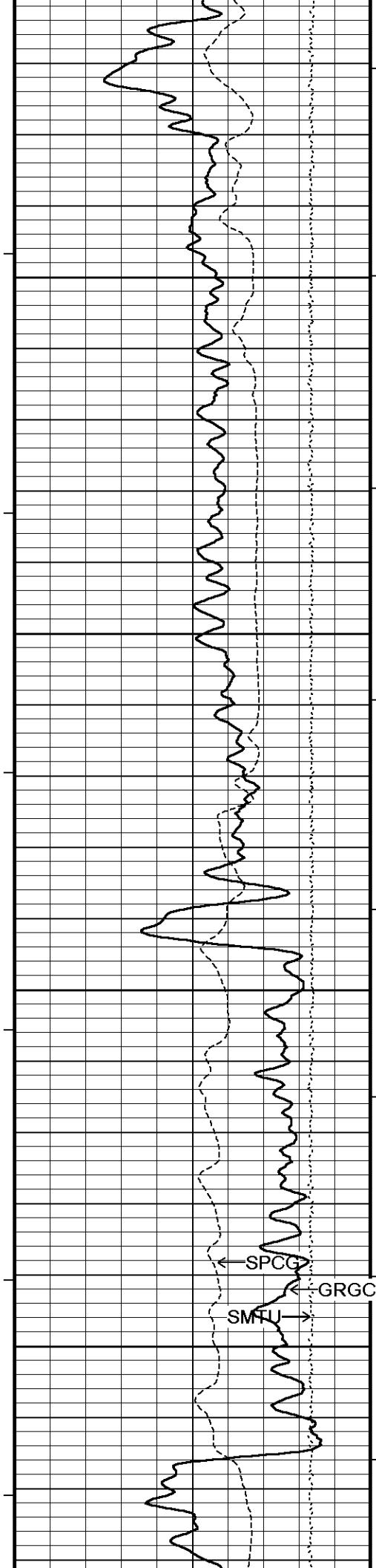


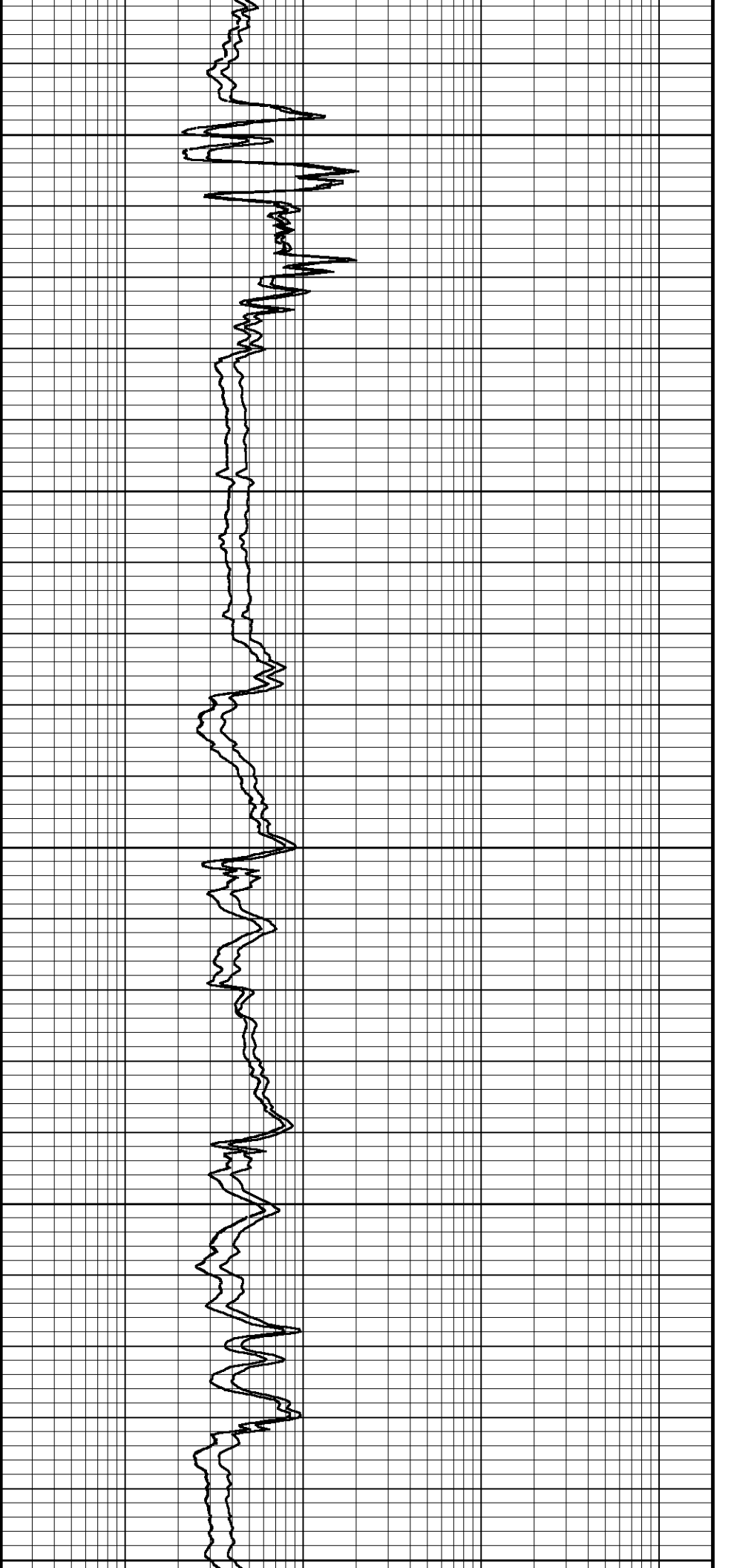
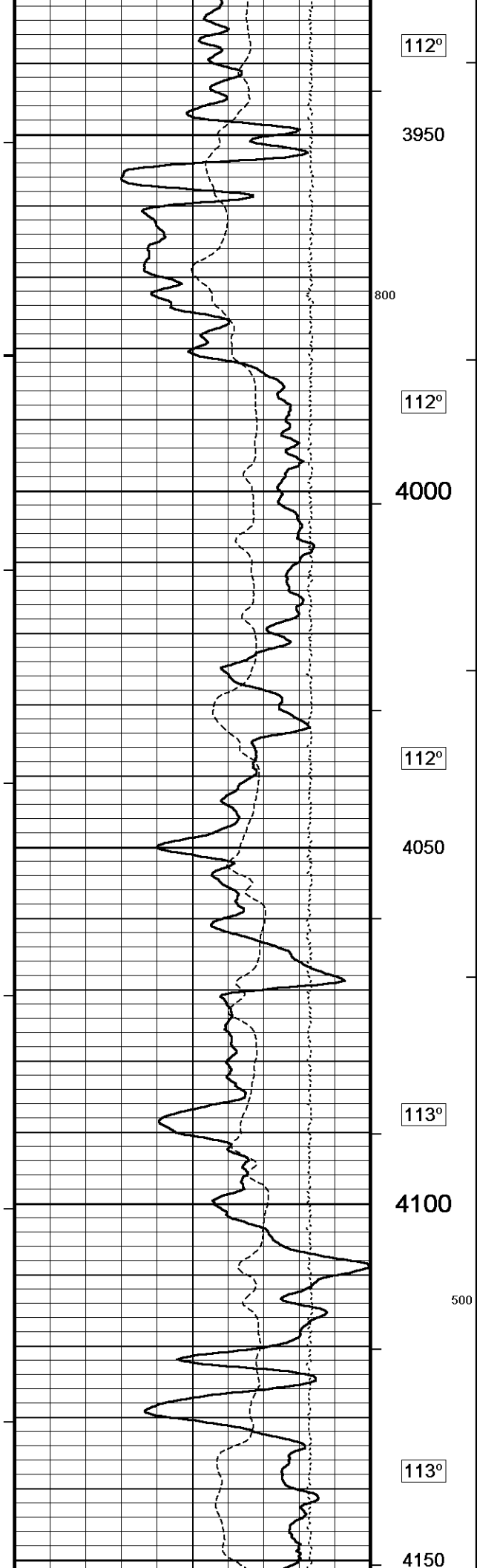


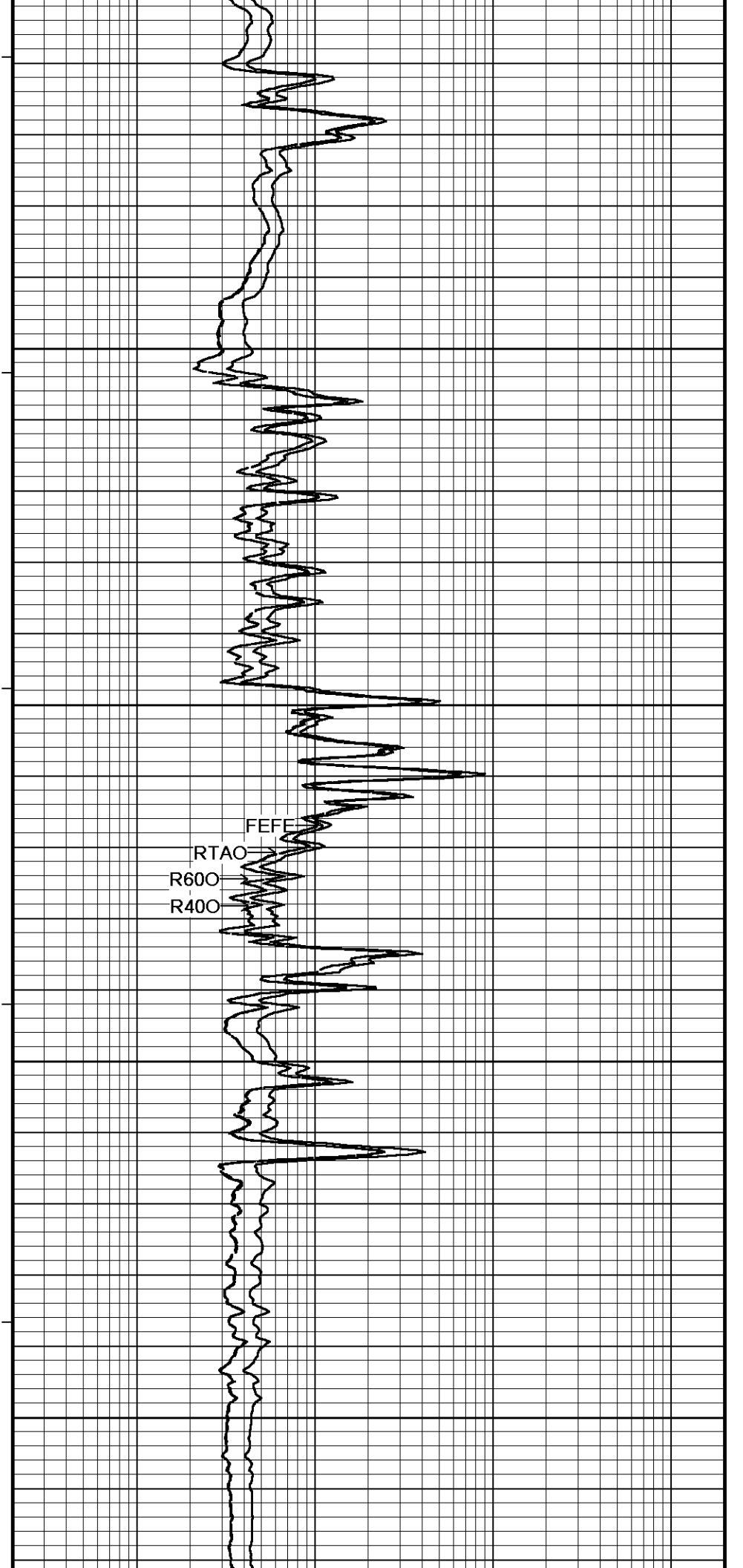
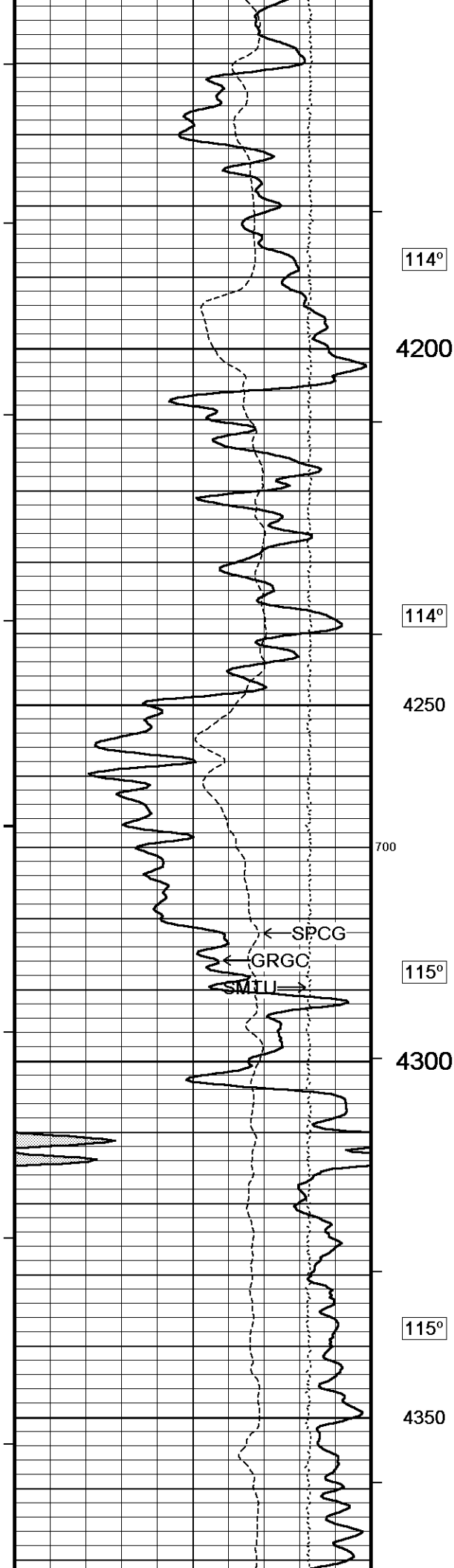


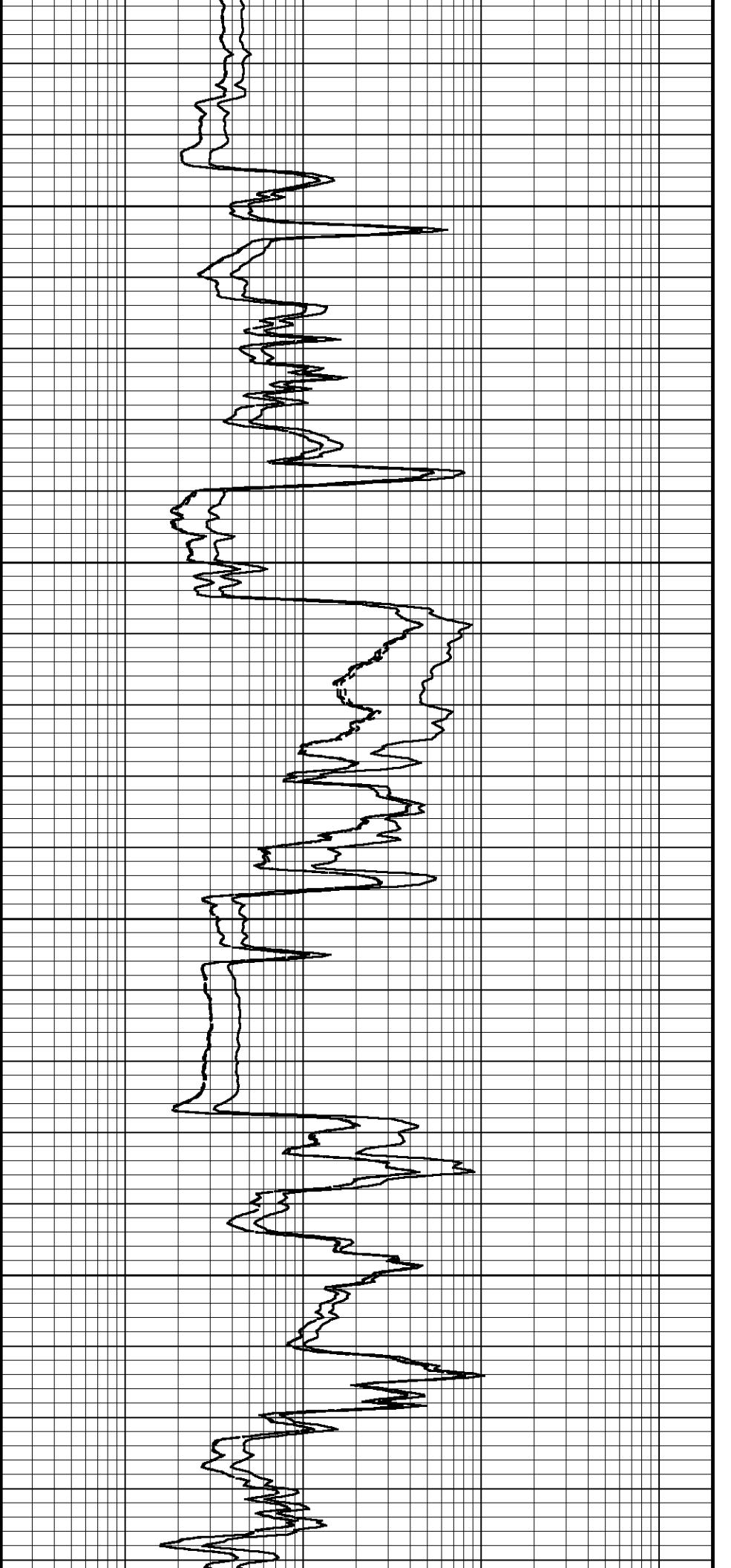
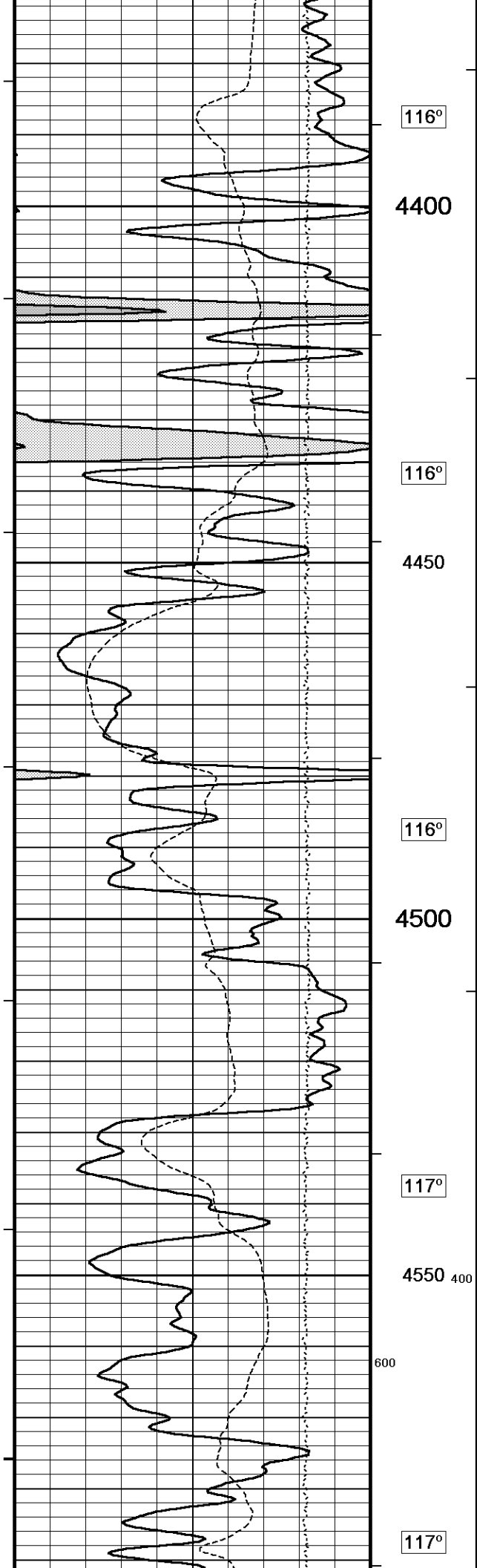












4600

118°

4650

118°

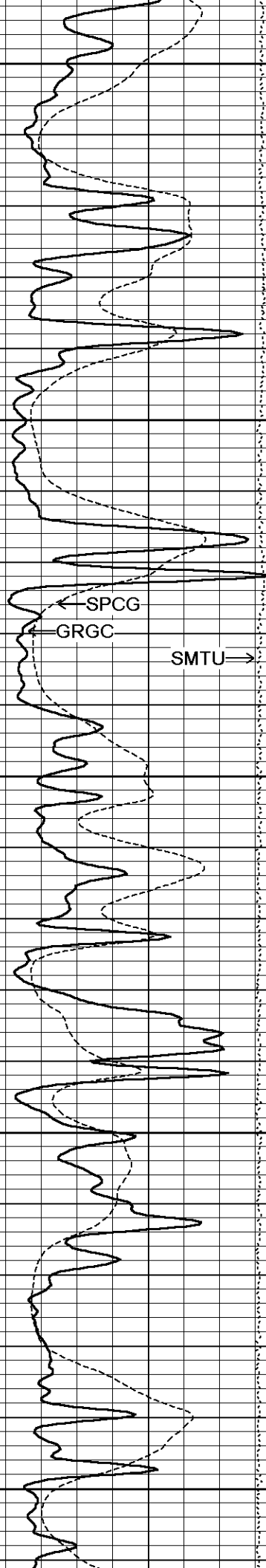
4700

118°

4750

118°

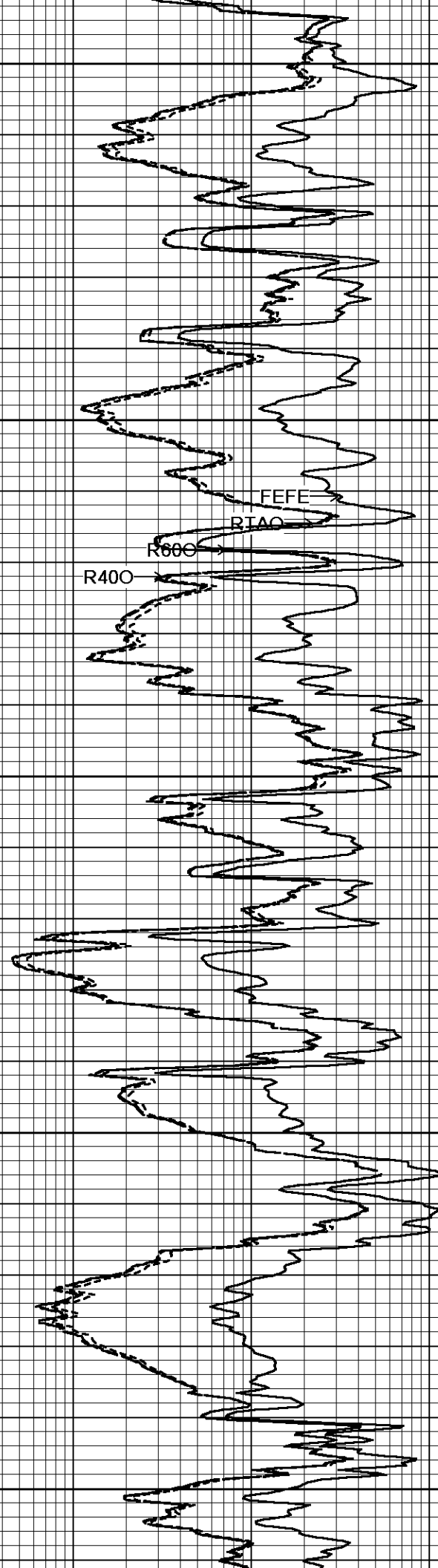
4800



SPCG

GRGC

SMTU

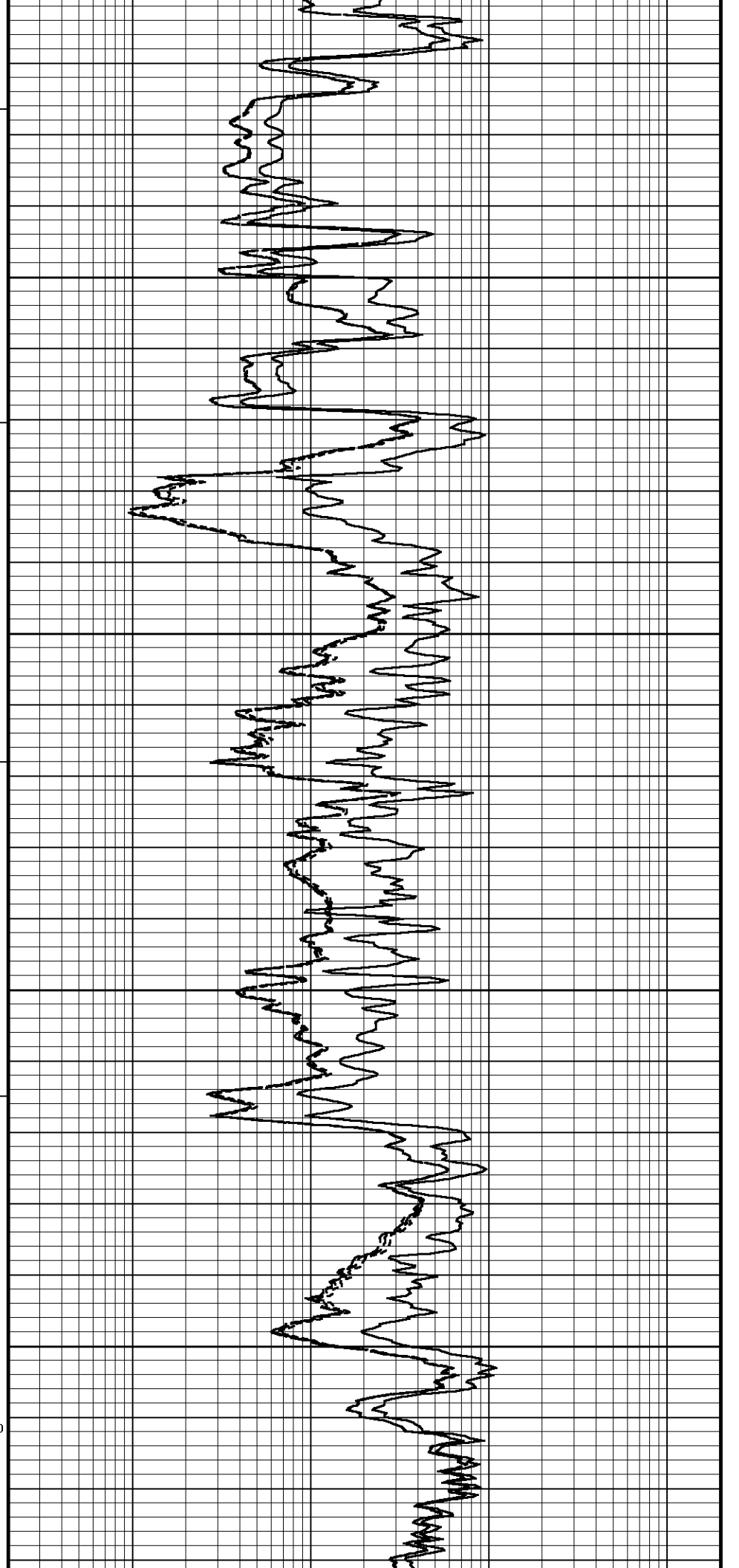
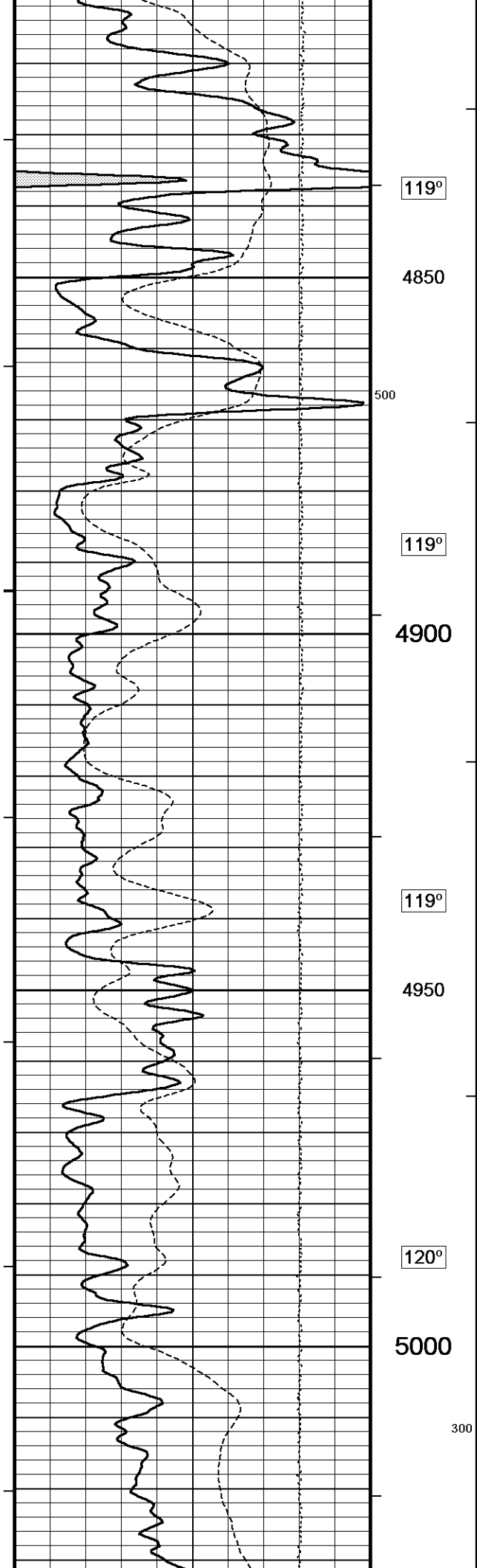


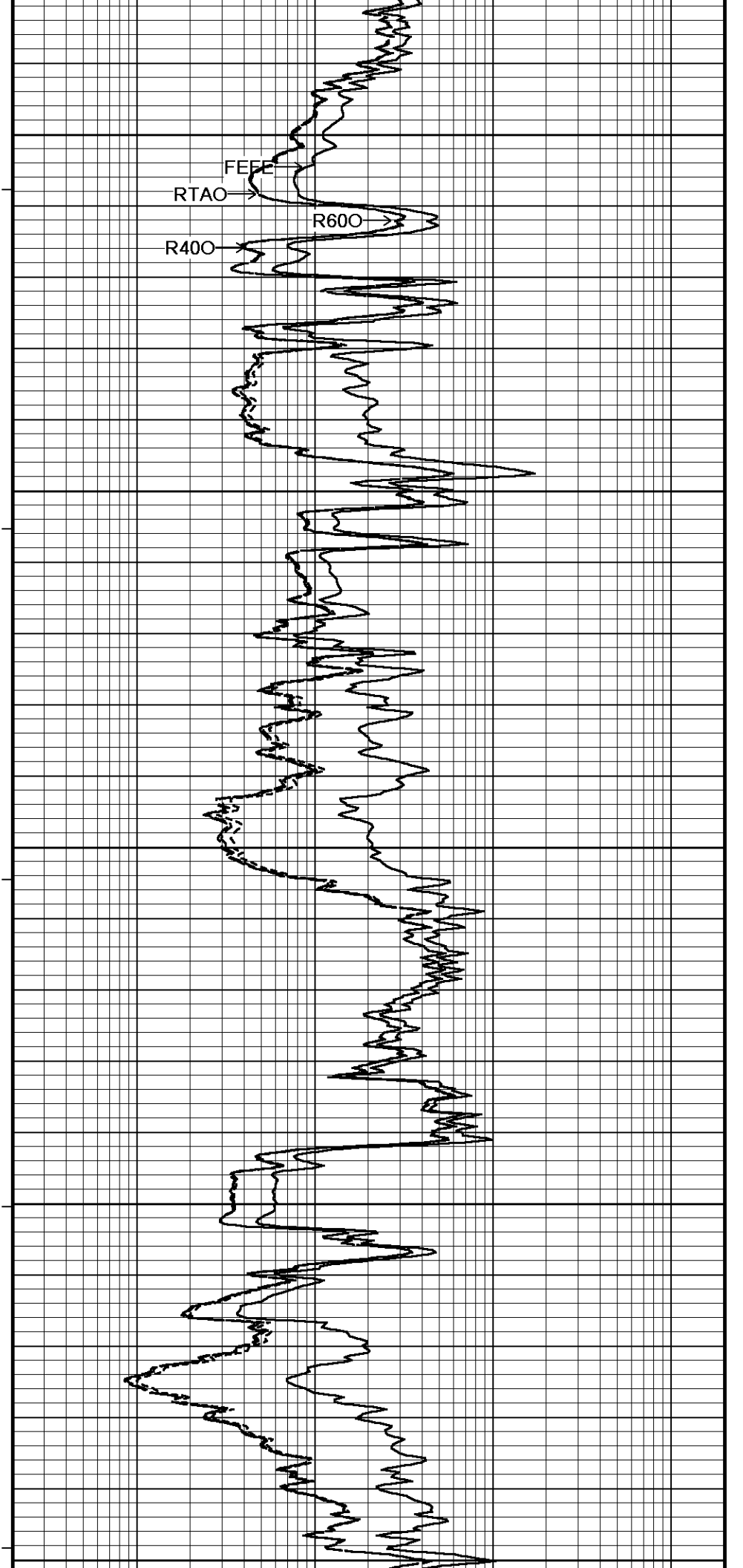
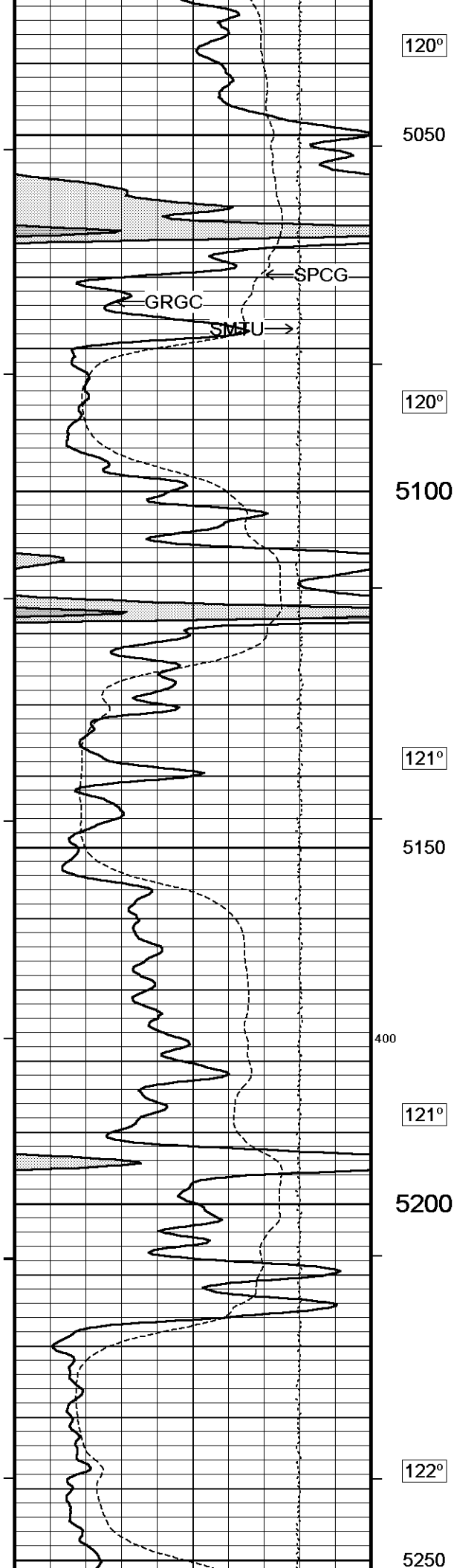
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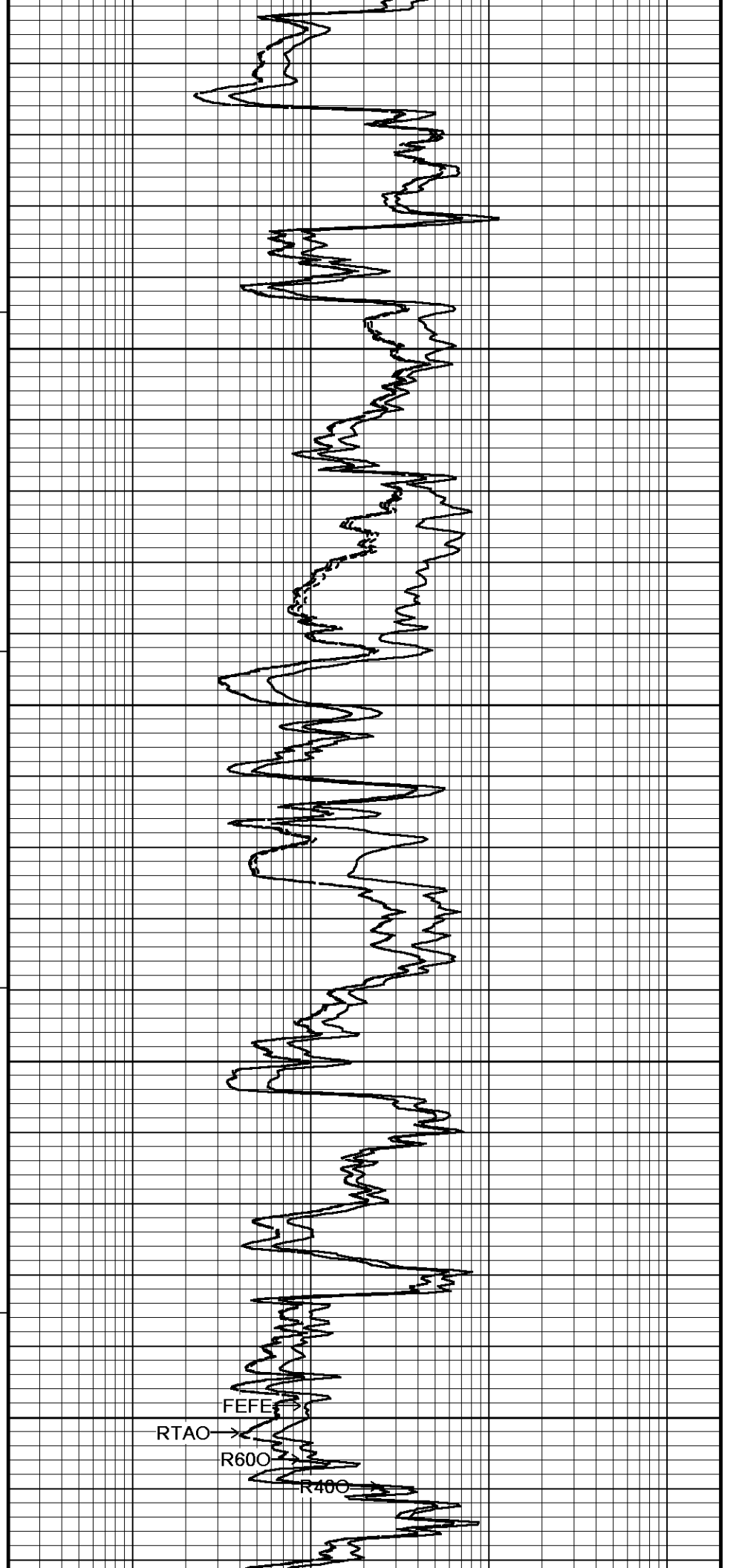
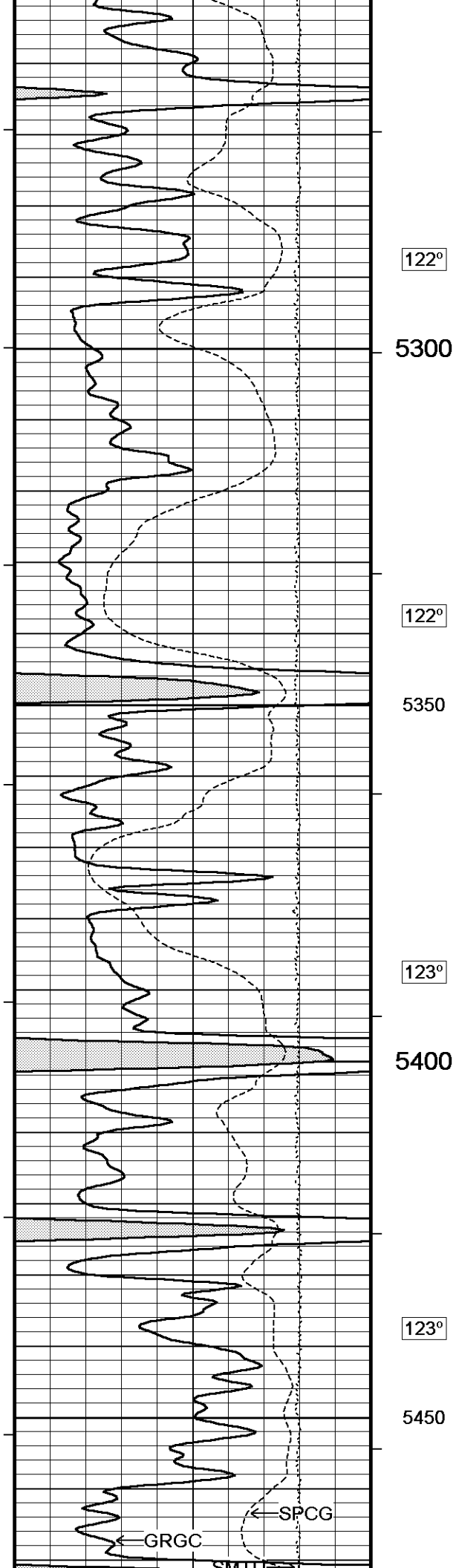
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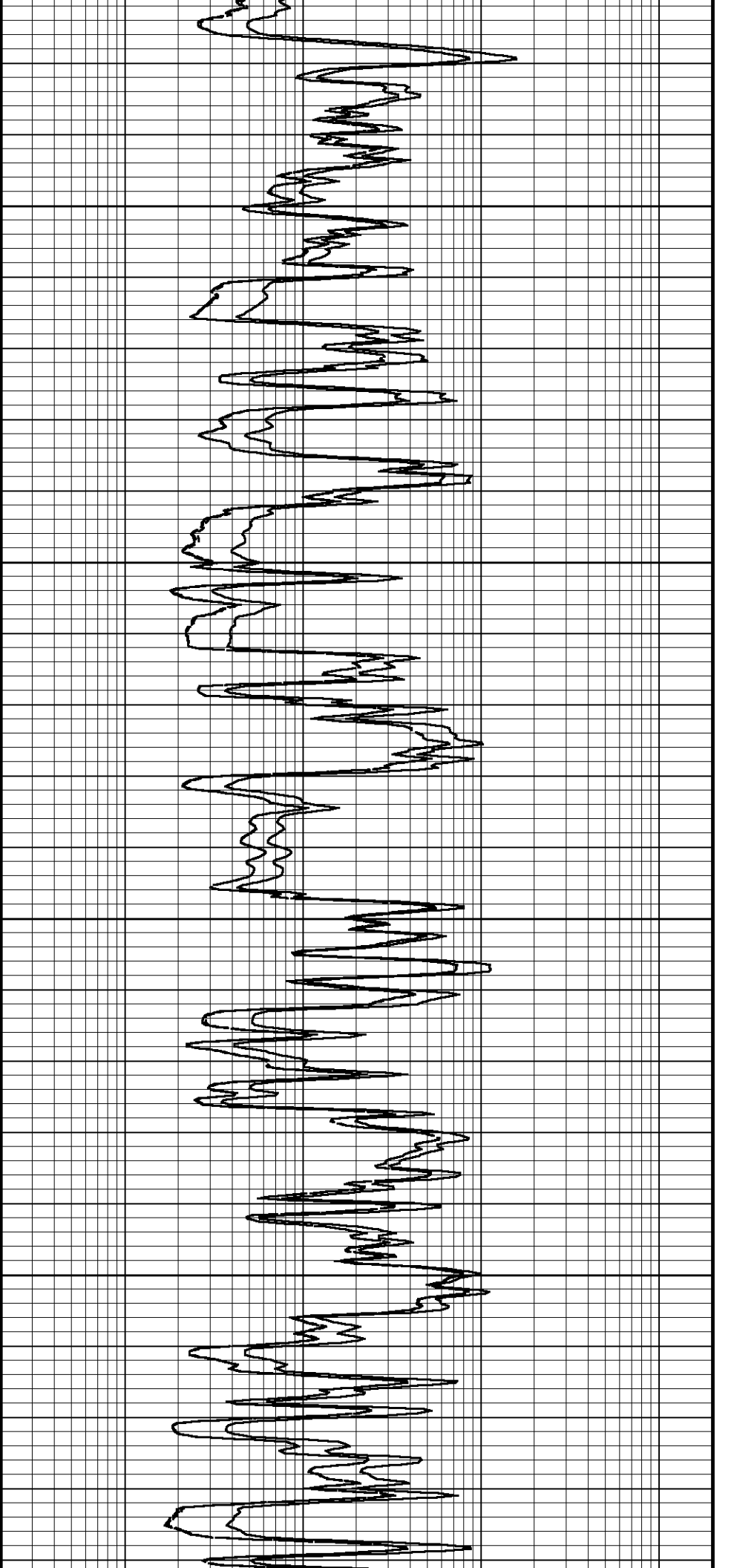
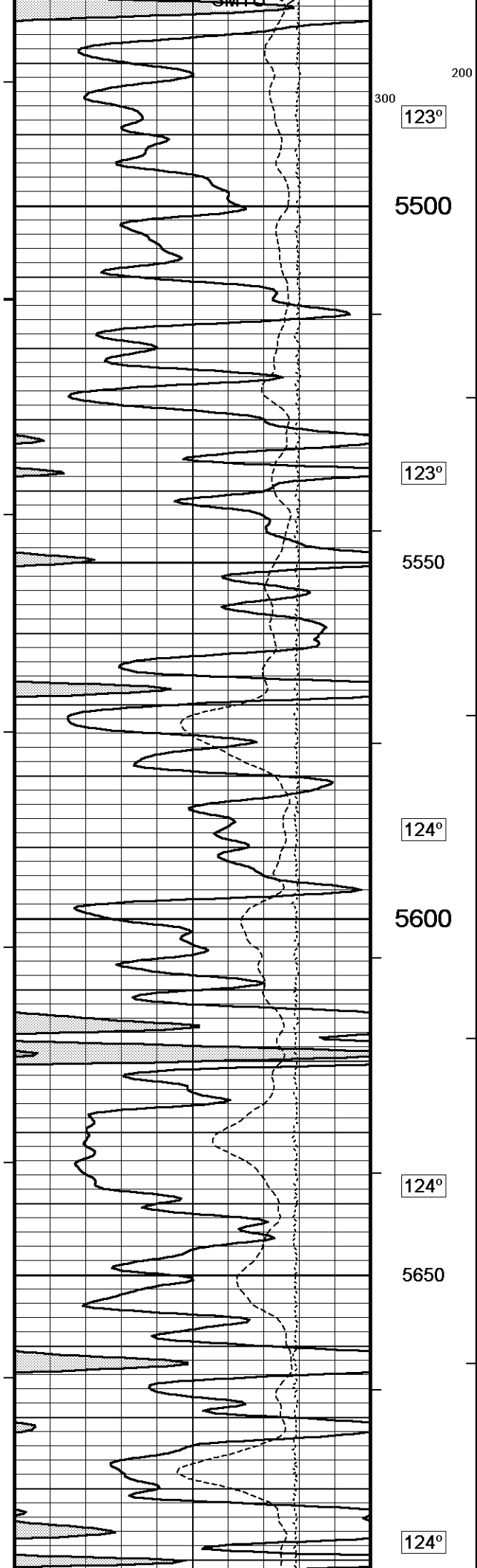
R600

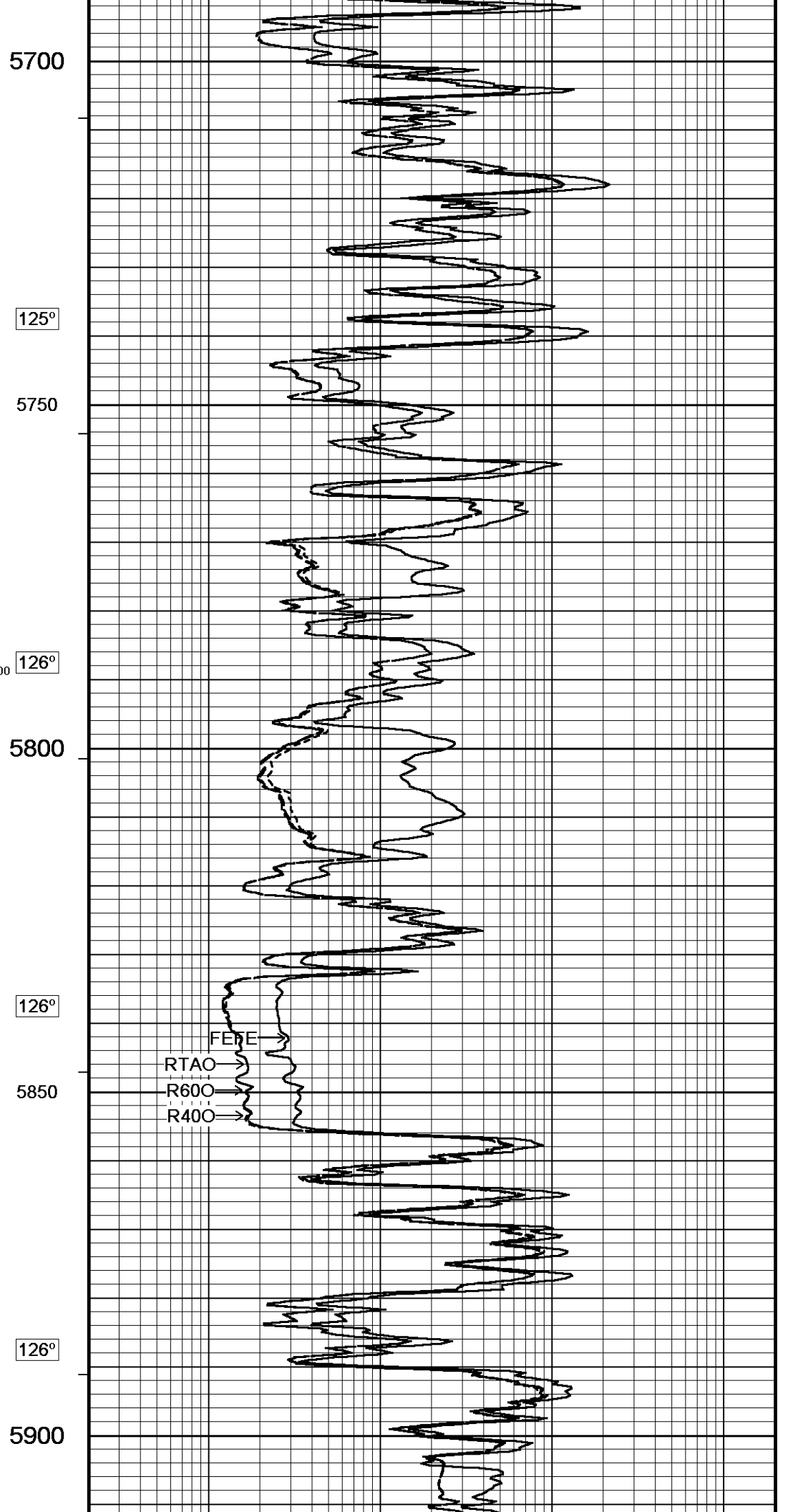
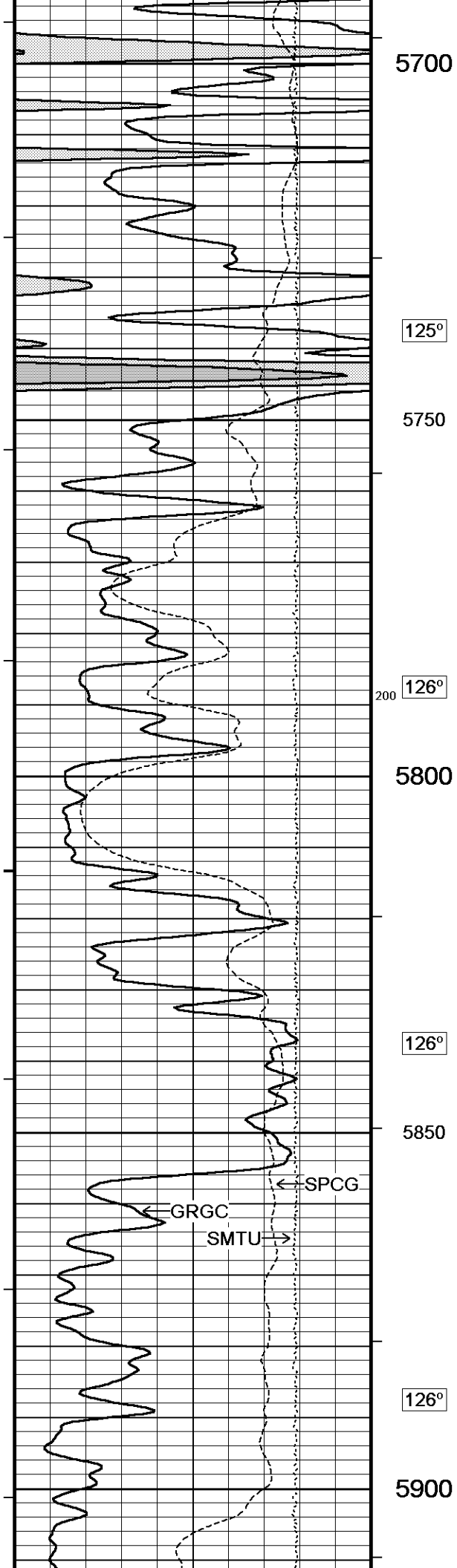
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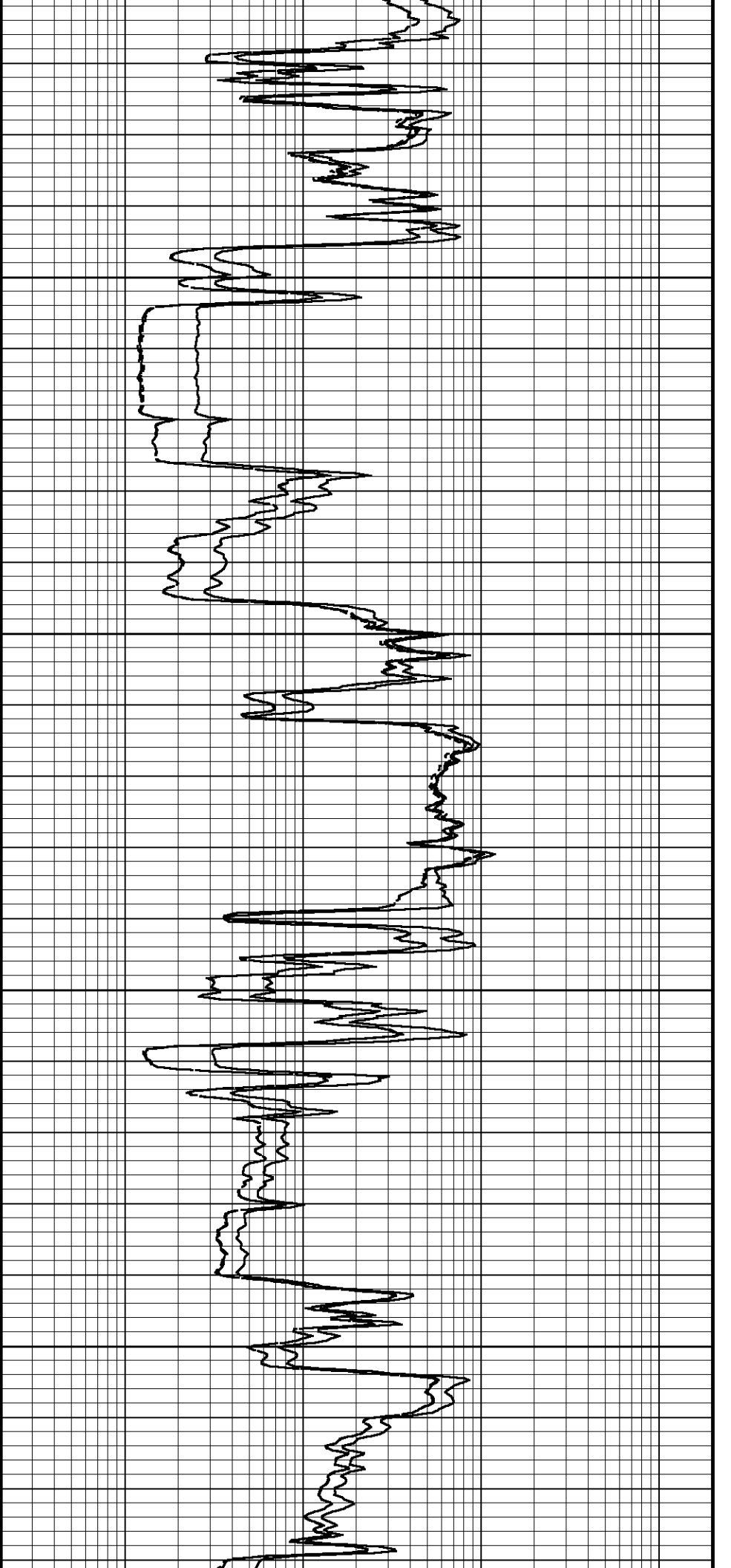
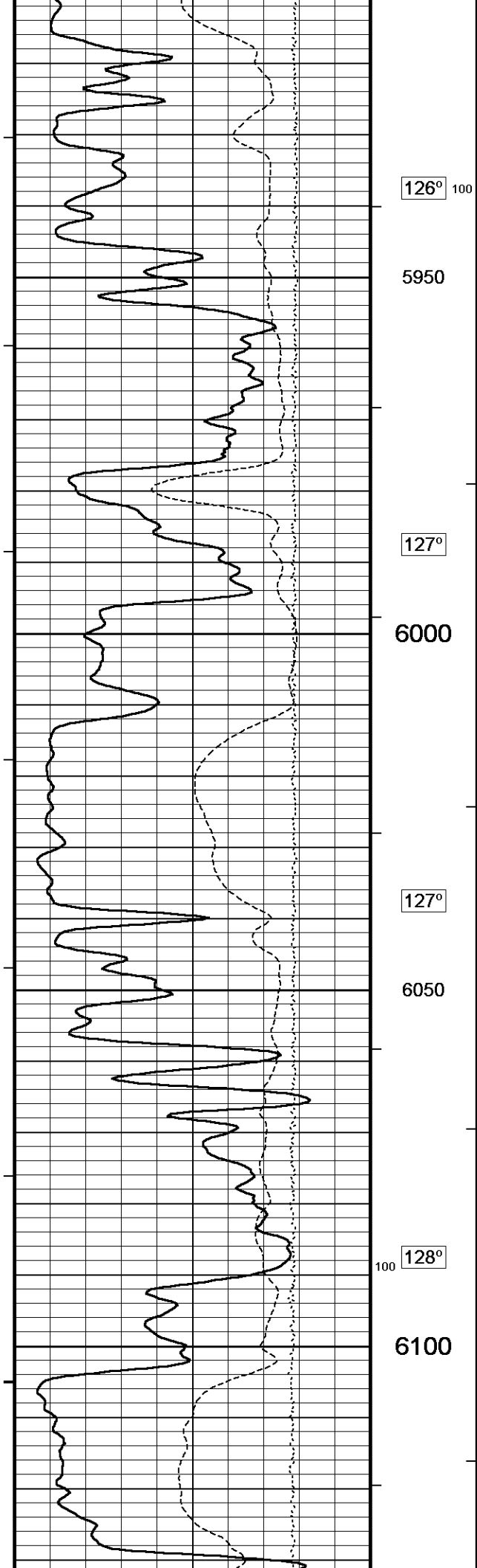


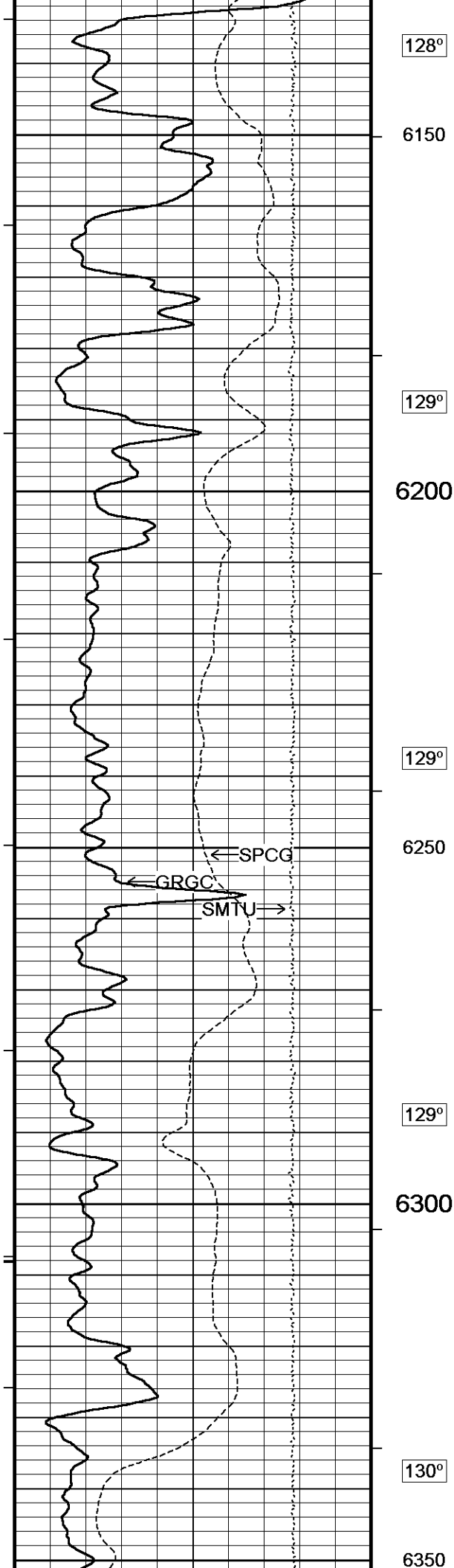












128°

6150

129°

6200

129°

6250

129°

6300

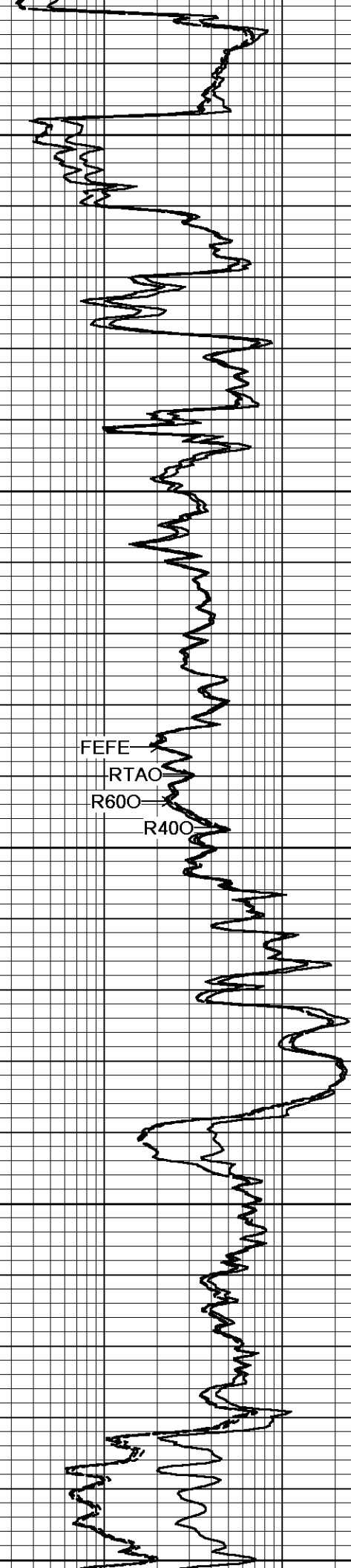
130°

6350

SPCG

GRGC

SMTU

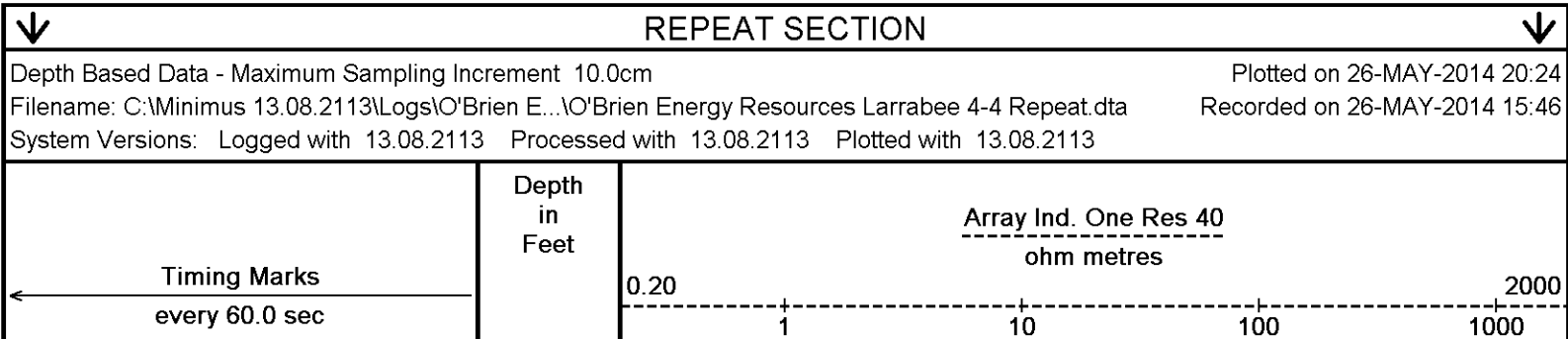
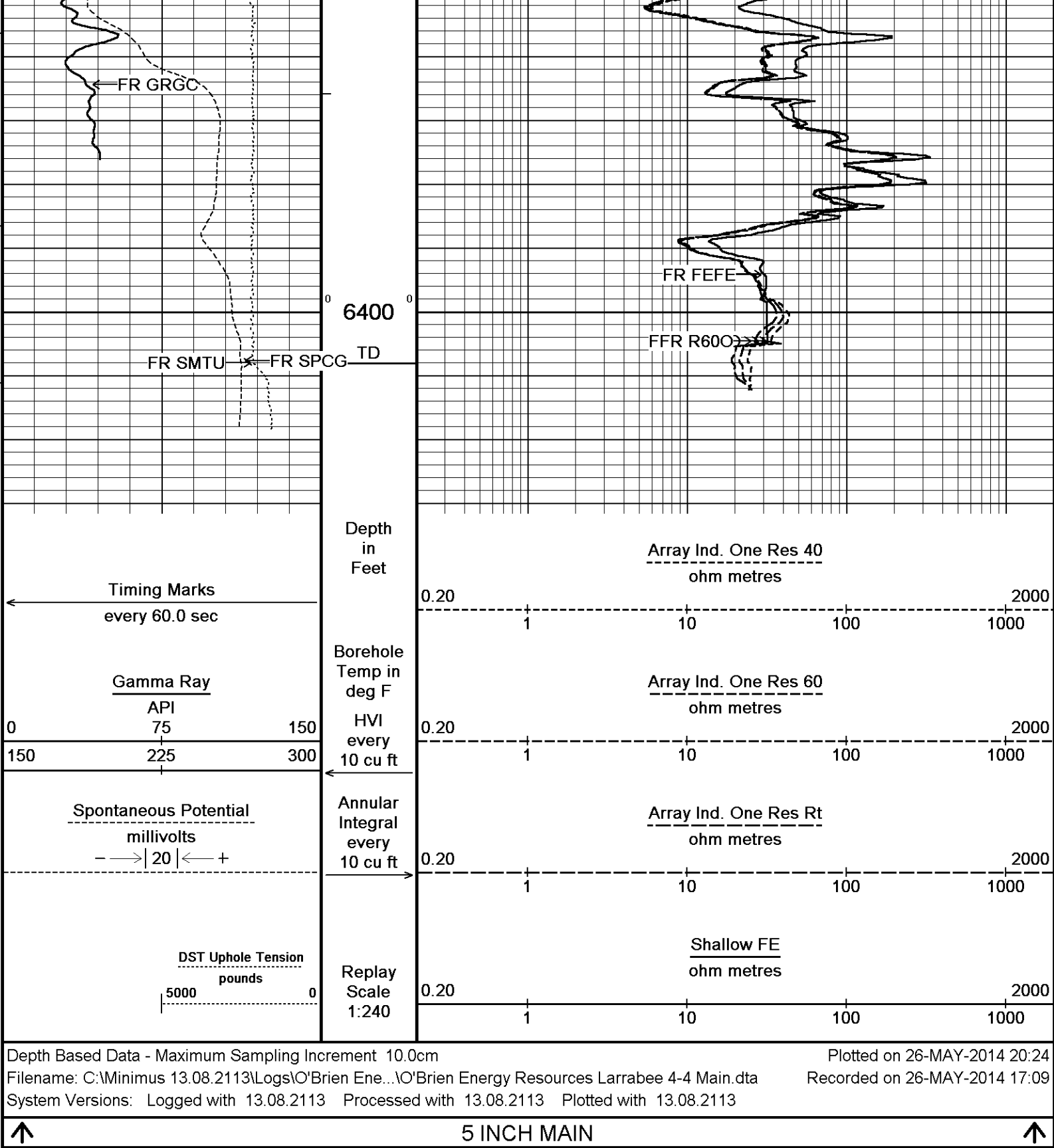


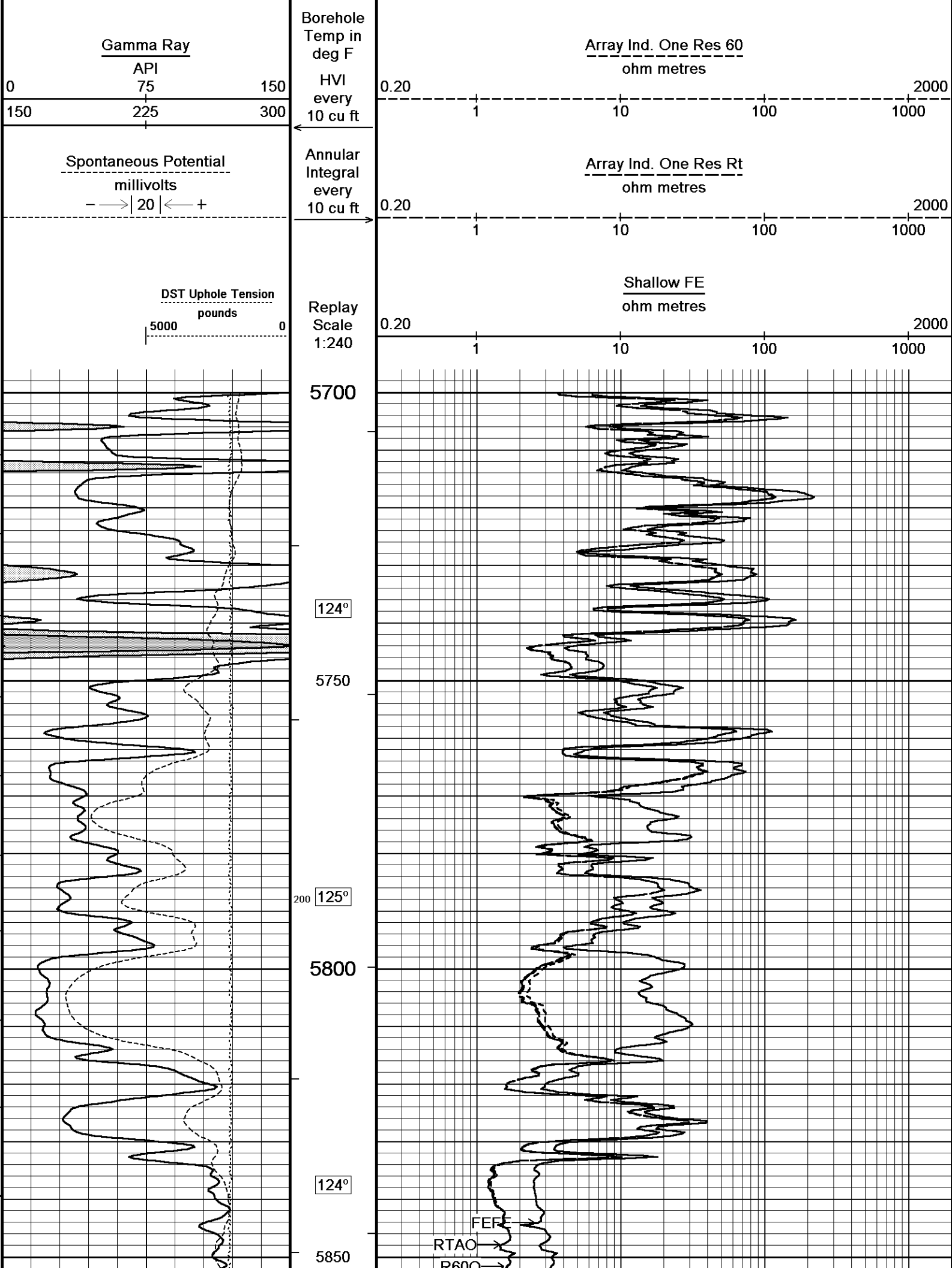
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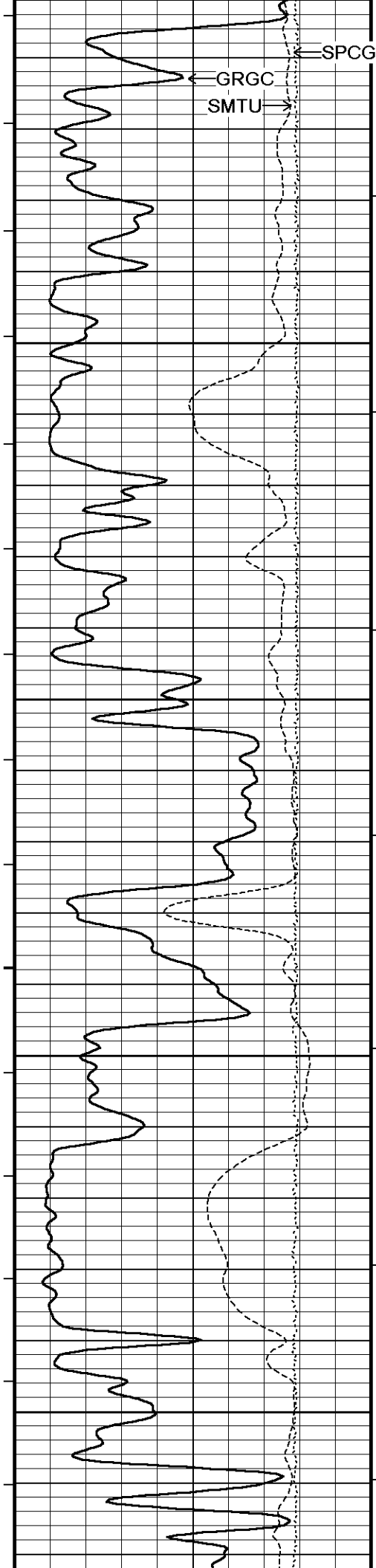
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R600

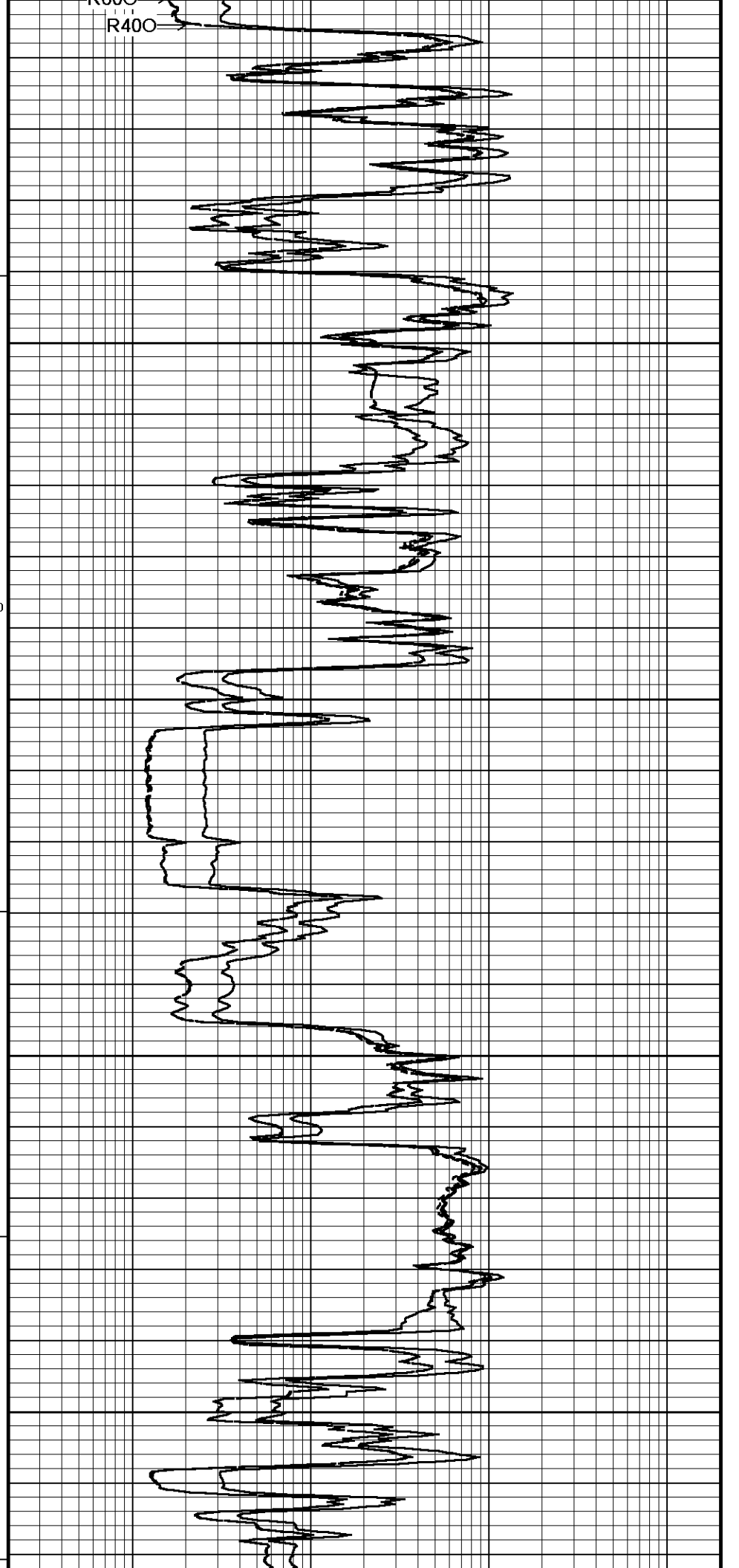
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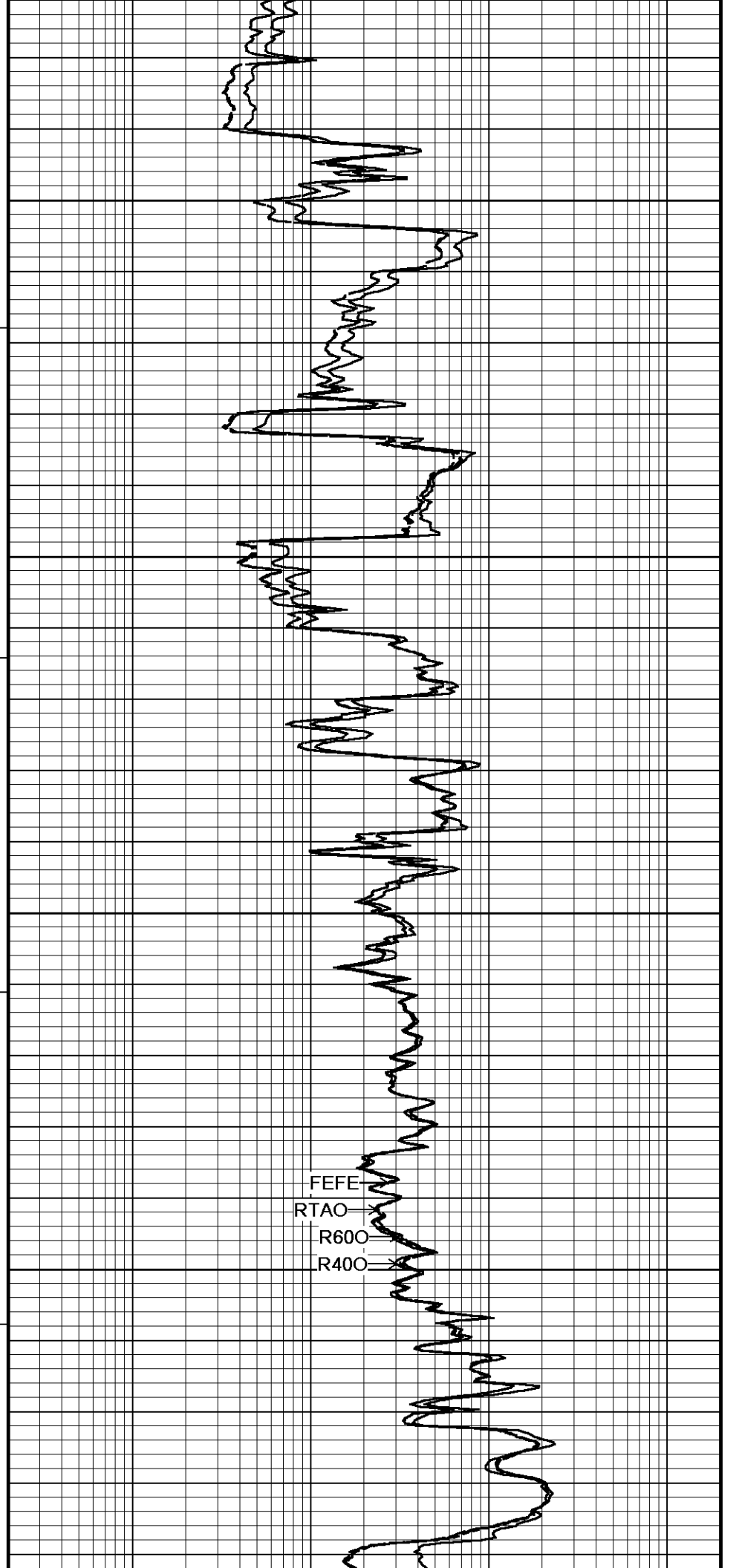
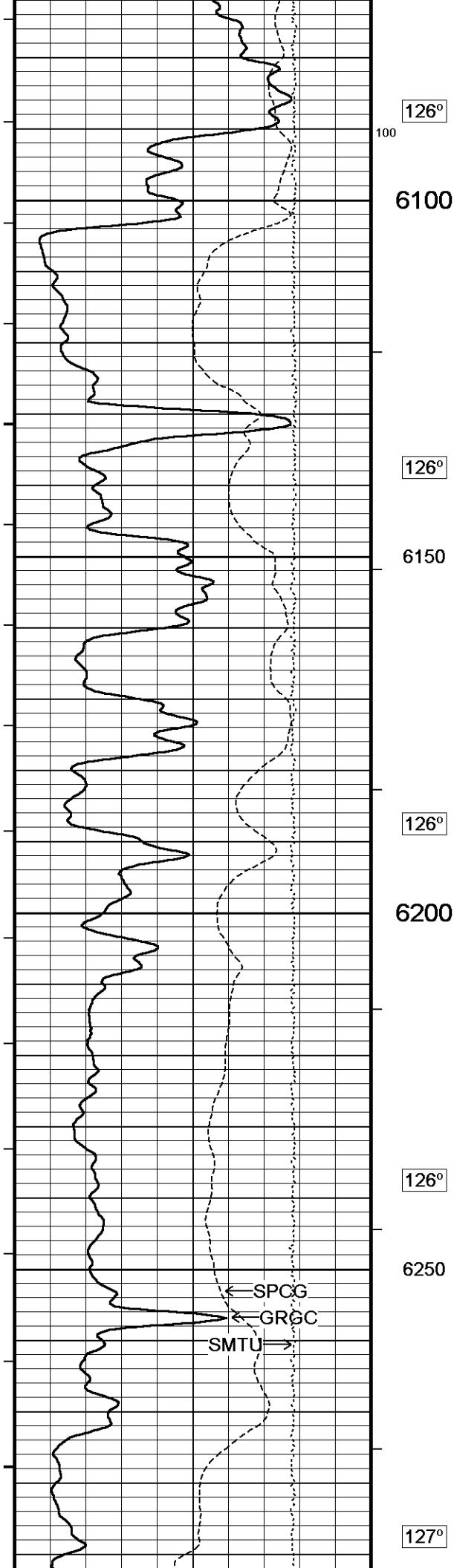


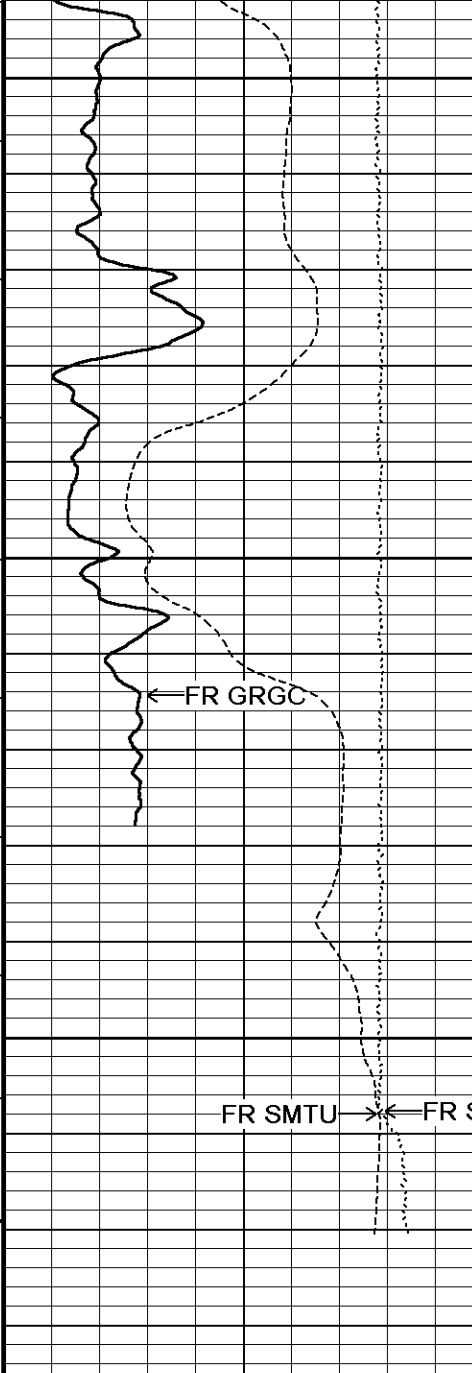


124°
5900
124° 100
5950
125°
6000
125°
6050



R00
R400





6300

127°

6350

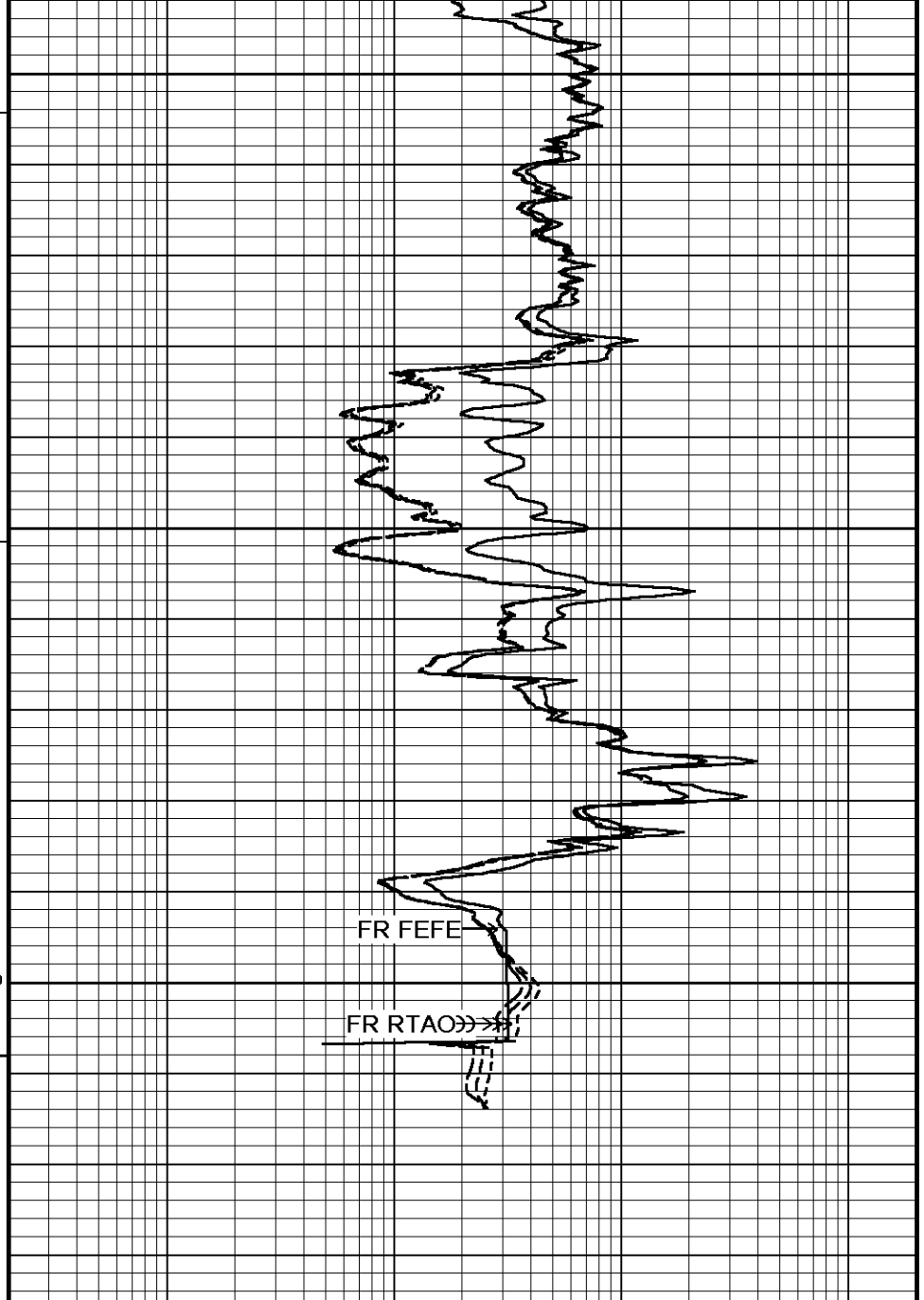
6400

FR GRGC

FR SMTU

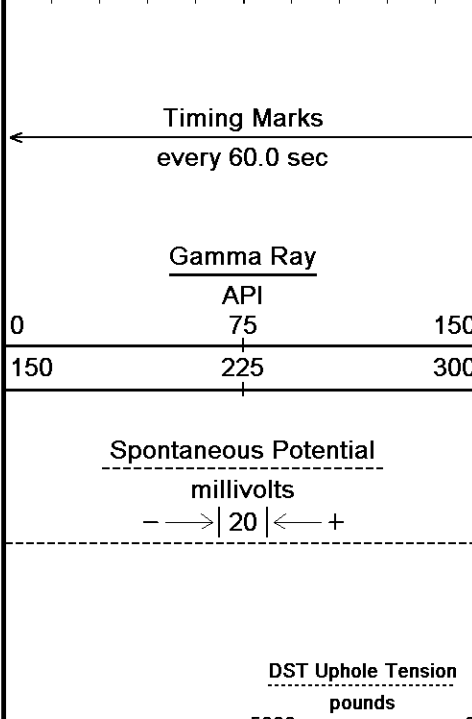
FR SPCG

TD



FR FEFE

FR RTAO



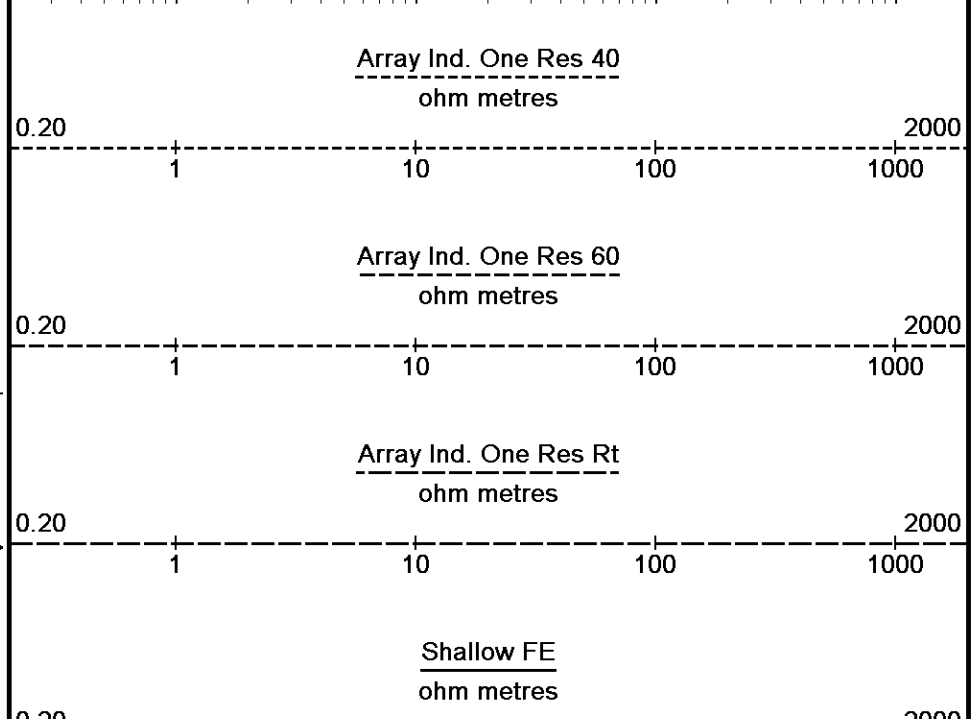
Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale



Array Ind. One Res 40
ohm metres

Array Ind. One Res 60
ohm metres

Array Ind. One Res Rt
ohm metres

Shallow FE
ohm metres

	1:240	1	10	100	1000
Depth Based Data - Maximum Sampling Increment 10.0cm				Plotted on 26-MAY-2014 20:24	
Filename: C:\Minimus 13.08.2113\Logs\O'Brien E...\O'Brien Energy Resources Larrabee 4-4 Repeat.dta				Recorded on 26-MAY-2014 15:46	
System Versions: Logged with 13.08.2113 Processed with 13.08.2113 Plotted with 13.08.2113					
↑	REPEAT SECTION				↑

BEFORE SURVEY CALIBRATION			
C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta			
General Constants All 000		Last Edited on 26-MAY-2014,12:31	
General Parameters			
Mud Resistivity	1.780	ohm-metres	
Mud Resistivity Temperature	75.000	degrees F	
Water Level	0.000	feet	
Borehole Fluid Processing	Wet Hole		
Hole/Annular Volume and Differential Caliper Parameters			
HVOL Method	Single Caliper		
HVOL Caliper 1	Density Caliper		
HVOL Caliper 2	N/A		
Annular Volume Diameter	4.500	inches	
Caliper for Differential Caliper	Density Caliper		
Rwa Parameters			
Porosity used	Crossplot Porosity		
Resistivity used	Array Ind. One Res Rt		
RWA Constant A	1.000		
RWA Constant M	2.000		
SW/APOR Tool Source	0.000		
Gamma Calibration MCG-D.K 443		Field Calibration on 20-MAY-2014 14:25	
	Measured	Calibrated (API)	
Background	72	48	
Calibrator (Gross)	1168	773	
Calibrator (Net)	1096	725	
Gamma Constants MCG-D.K 443		Last Edited on 26-MAY-2014,12:00	
Gamma Calibrator Number GRC38			
Mud Density	1.13	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	
High Resolution Temperature Calibration MCG-D.K 443		Field Calibration on 05-MAR-2014,20:50	
	Measured	Calibrated(Deg F)	
Lower	50.00	50.00	
Upper	75.00	75.00	
High Resolution Temperature Constants MCG-D.K 443		Last Edited on 05-MAR-2014,20:50	
Pre-filter Length	11		
FE Calibration MFE-B.J 352		Base Calibration on 05-MAY-2014 10:07 Field Check on 20-MAY-2014 13:57	
Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	963.2	126.8	
Base Check		281.6	
Field Check		281.6	
FE Constants MFE-B.J 352		Last Edited on 26-MAY-2014 11:55	

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

Induction Calibration MAI-A.A 158

Base Calibration on 03-APR-2014,15:01
Field Check on 20-MAY-2014 13:56

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.2	475.3	9.3	966.2
2	6.1	381.2	7.6	821.4
3	3.8	265.2	5.2	566.0
4	2.7	132.2	2.6	279.2

Array Temperature 22.3 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			13.5	3813.8
2			30.5	3528.8
3			27.5	2979.4
4			18.2	2096.0
Deep			15.1	1942.2
Medium			41.2	3884.8
Shallow			48.0	5234.1

Array Temperature 80.5 Deg F

Induction Constants MAI-A.A 158

Last Edited on 26-MAY-2014,11:58

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	

Caliper Calibration MPD-B 104

Base Calibration on 15-MAY-2014 11:17

Field Calibration on 20-MAY-2014 14:03

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	11934	3.99
2	20612	5.98
3	29168	7.97
4	37534	9.86
5	46657	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
8.00	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.08.2113\Logs\O'Brien Energy Resources Larrabee 4-4\O'Brien Energy Resources Larrabee 4-4 Main.dta

3/8" Triple Cone Cable Head (MCB C A)

MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.244 in

Compact Comms Gamma

MCG-D.K 443 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

Compact Micro-Resistivity

MMR-B.A 98 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in

Compact Neutron

MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper

MPD-B 104 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in

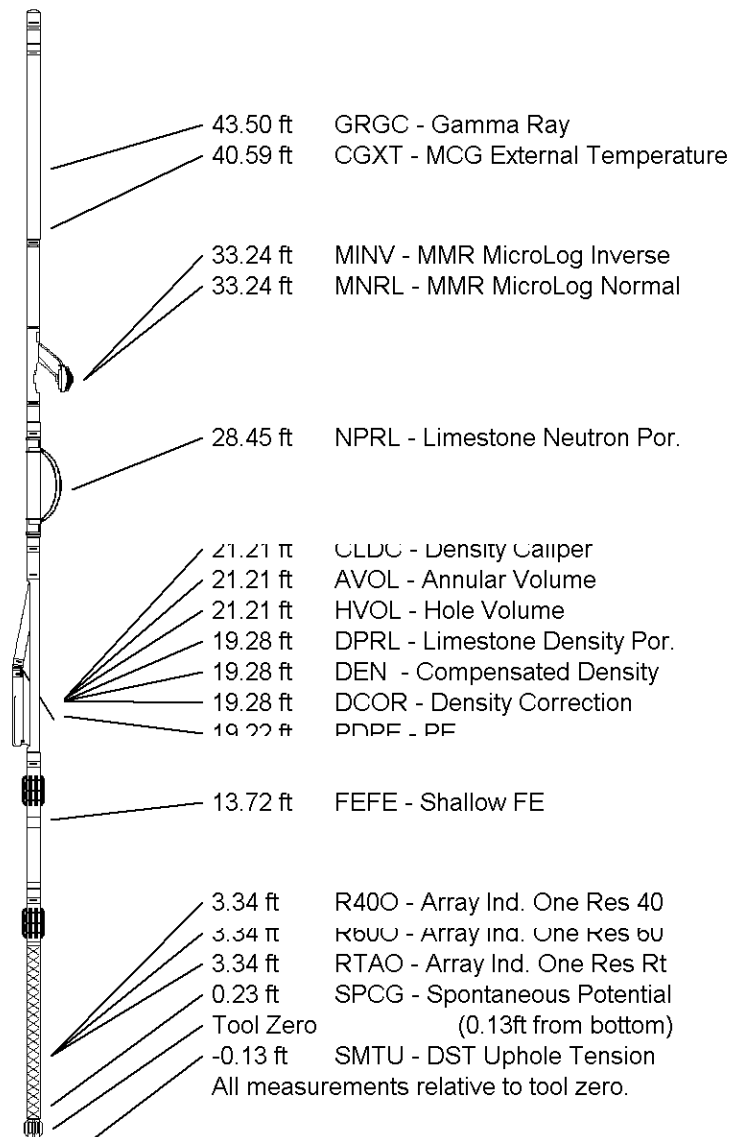
Compact Focussed Electric

MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in

Compact Induction

MAI-A.A 158 LG: 10.81 ft WT: 48.5 lb OD: 2.244 in

Total Length: 50.36 ft Weight: 399.0 lb



COMPANY

O'BRIEN ENERGY RESOURCES CORP.

WELL

LARRABEE 4-4

FIELD

MOHLER

PROVINCE/COUNTY

MEADE

COUNTRY/STATE

U.S.A. / KANSAS

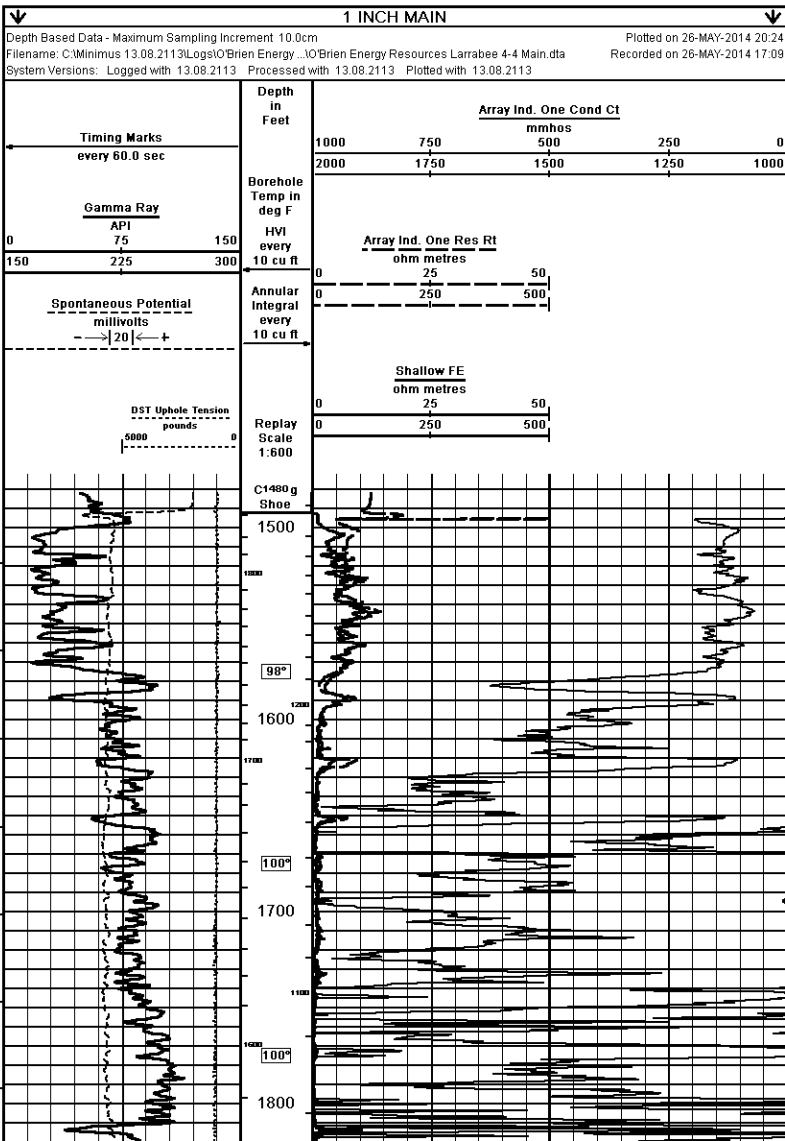
COUNTRY/STATE			U.S.A. / KANSAS		
Elevation Kelly Bushing	2541.00	feet	First Reading	6404.66	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	6415.00	feet
Elevation Ground Level	2530.00	feet	Depth Logger	6408.00	feet

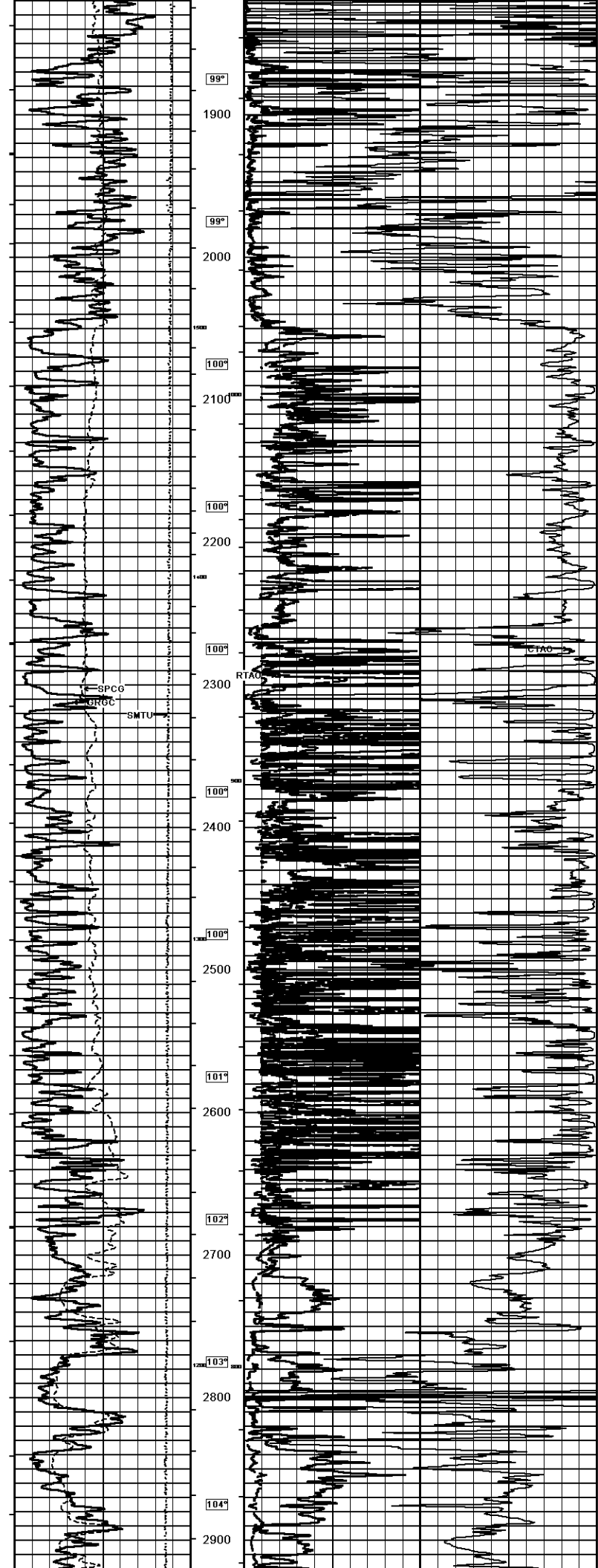


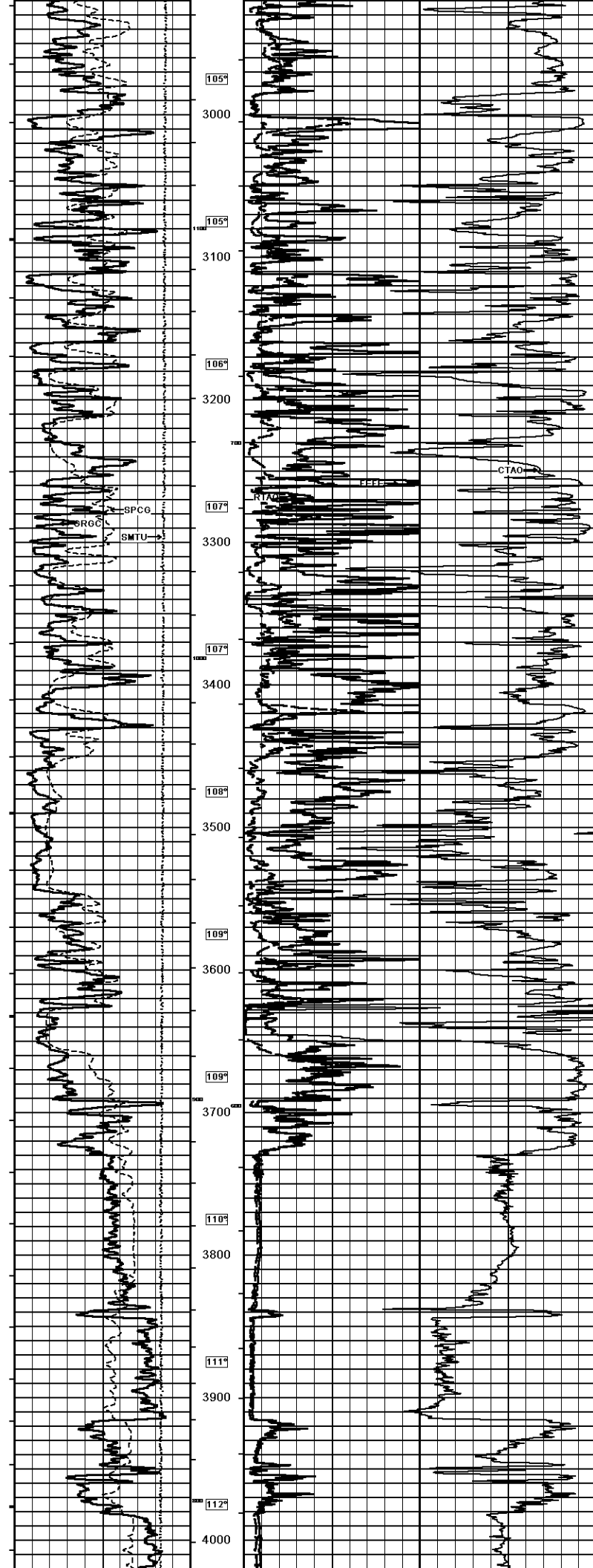
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

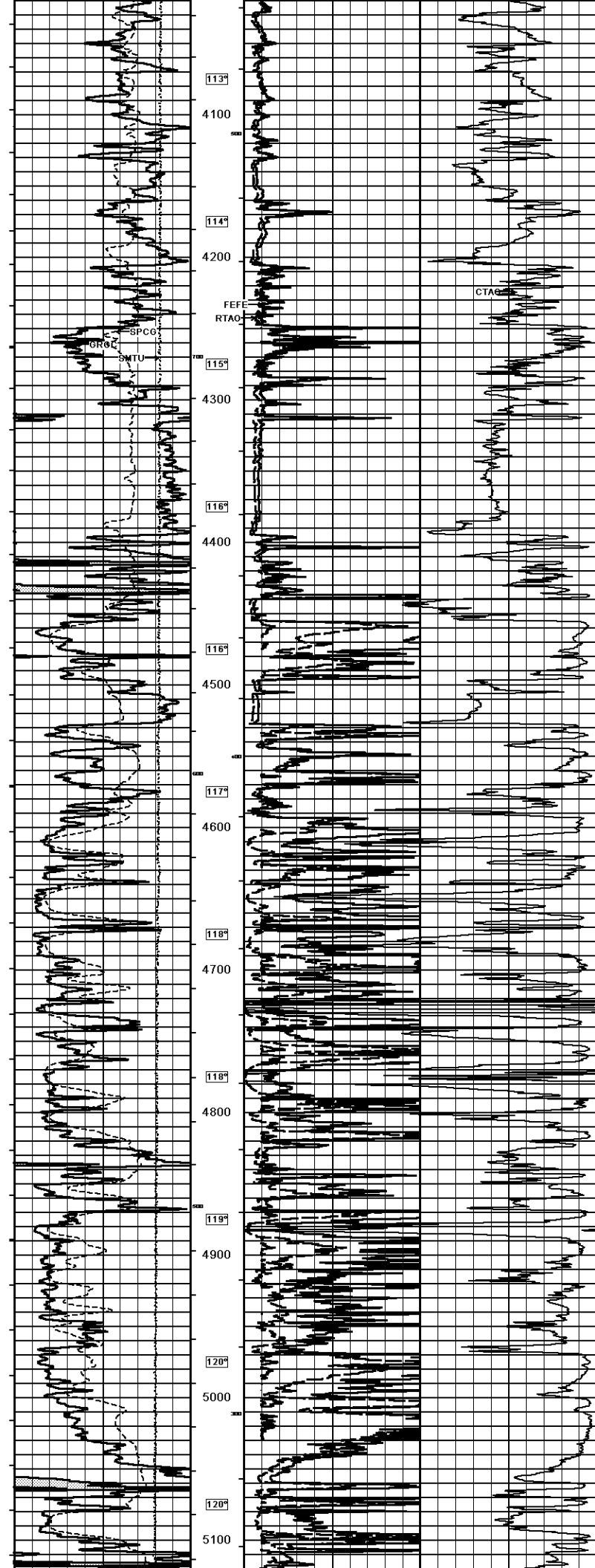
Weatherford®

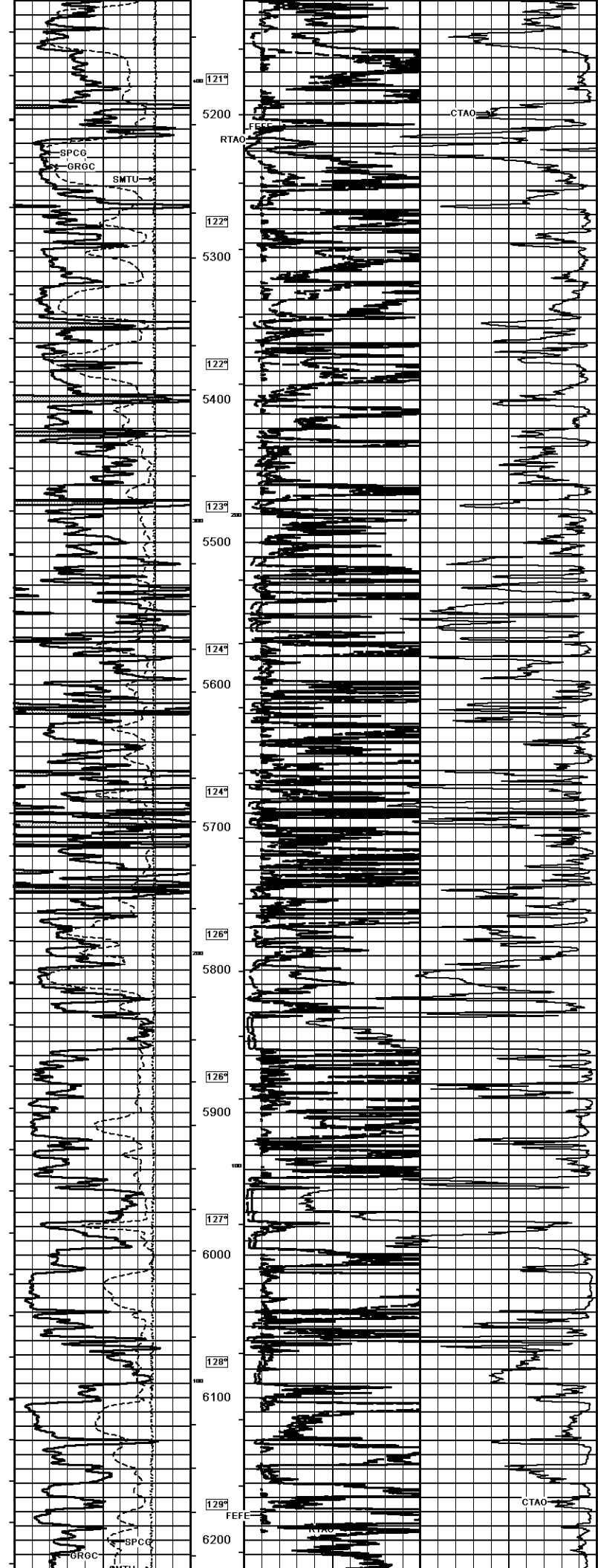
Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	O'BRIEN ENERGY RESOURCES CORP.		
WELL	LARRABEE 4-4		
FIELD	MOHLER		
PROVINCE/COUNTY	MEADE		
COUNTRY/STATE	U.S.A. / KANSAS		
LOCATION	1220' ENL & 335' FEL		
SEC. 4	TWP. 34S. R.06E. 23W.		
Latitude	35.11921368	Longitude	97.25300000
Log Number	15-11921368		
Permanent Datum G.L. Elevation	2530 feet		
Log Measured From KB	@ 11 FEET		
Drilling Measured From KB	@ 11 FEET		
Date	26-MAY-2014		
Run Number	ONE		
Service Order	7036-88215374		
Depth Driller	6415.00	feet	
Depth Logger	6408.00	feet	
First Reading	6404.66	feet	
Last Reading	1492.00	feet	
Casing Driller	1494.00	feet	
Casing Logger	1492.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	WBM		
Density/Viscosity	9.40	lbm/gal	60.00 cP
PH/Fluid Loss	9.00	inches	8.00 min/30min
Sample Source	MLDPT		
Rim @ Measured Temp	1.78 @ 75.0	ohm-m	
Rim @ Measured Temp	1.42 @ 150	ohm-m	
Rim @ Measured Temp	2.14 @ 150	ohm-m	
Source Rmt/Rmt	CALC	ohm-m	
Rim @ BHT	1.05 @ 30.0	ohm-m	
Time Since Circulation	3 HOURS	deg F	
Max Recorded Temp	130.00	deg F	
Equipment Base	13057	deg F	
Recorded By	DEREK CARTER	deg F	
Witnessed By	ROGER PEARSON	deg F	
DOB #	BR 4-198	PETER DEBENHAM	

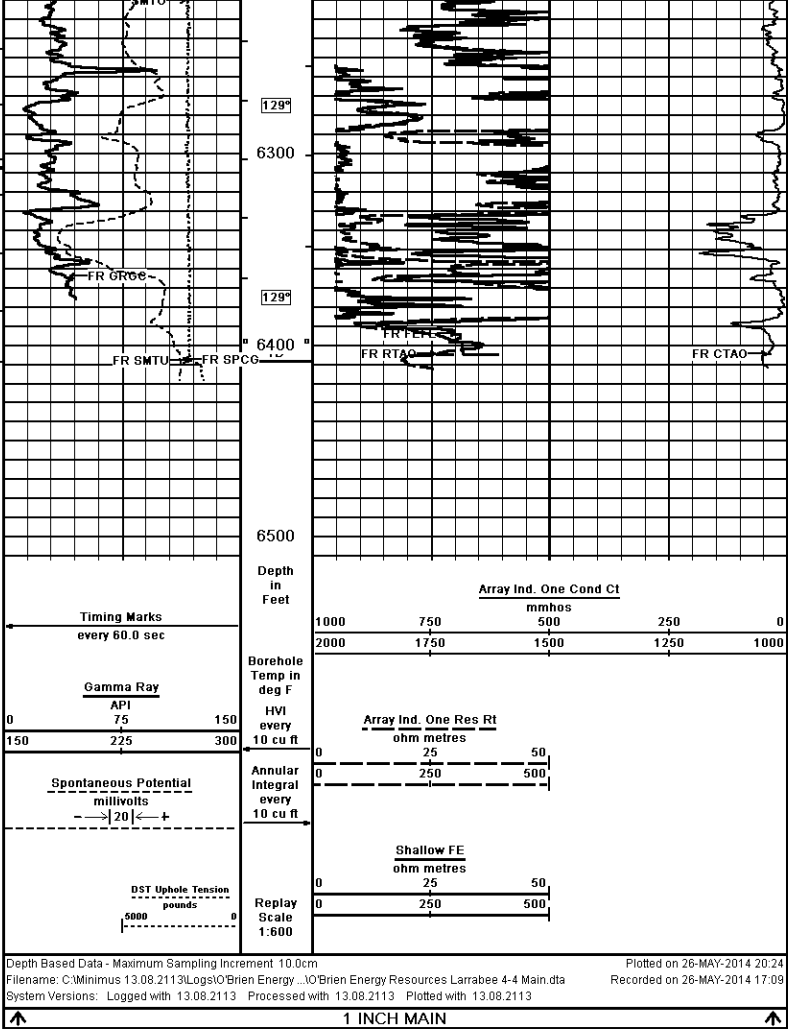












COMPANY		O'BRIEN ENERGY RESOURCES CORP.			
WELL		LARRABEE 4-4			
FIELD		MOHLER			
PROVINCE/COUNTY		MEADE			
COUNTRY/STATE		U.S.A. / KANSAS			
Elevation Kelly Bushing	2541.00	feet	First Reading	6404.66	feet
Elevation Drill Floor	2539.00	feet	Depth Driller	6415.00	feet
Elevation Ground Level	2530.00	feet	Depth Logger	6408.00	feet
		ARRAY INDUCTION			
Weatherford		SHALLOW FOCUSED			
		ELECTRIC LOG			